August 9, 2006

Responsiveness Summary to Comments Received
Regarding Ohio EPA's Draft NPDES General Permit for
Storm Water Discharges Associated with Construction Activity
Located within the Big Darby Creek Watershed (OHC100001)

Public Noticed December 30, 2005
Comment Period Ended March 16, 2006

GENERAL

1. One commenter stated that the permit is deficient in addressing targets set out in antidegradation rules and the TMDL and will the permit protect and improve use attainment. It was questioned how load allocations will be reflected in SWP3s.

   Response: The TMDL recommended strong construction controls for sediment and the 45 mg/l is a technology limit supported by its use by other regulatory programs. The post-construction BMP's are specifically designed to provide post-construction water quality treatment of sediment and associated nutrients. There are no proposed effluent limitations at this time for post-construction BMP's, however Ohio EPA plans to assess BMP effectiveness via sampling to determine if post-construction limits are needed, and if so, what such limits should be established at.

2. Comments questioned how the permit will ensure that rare and endangered species will be protected. It was requested that the permit provide a list of rare and endangered species within the Darby.

   Response: All in stream activities which would potentially affect rare and endangered species must be authorized via a 404 permit issued by the U.S. Army Corps of Engineers and subsequently a 401 Water Quality Certification issued by Ohio EPA. Concurrent with the review process ODNR and US Fish and Wildlife provide comments to address the protection of rare and endangered species. The permit requires compliance with the 404 and 401 permit process.

3. One commenter stated that elevated levels of arsenic, chromium, and iron were detected where Sugar Run dumps into Big Darby south of Plain City. Was any kind of follow up taken in response to this issue?

   Response: This permit is not intended to address sediment that is already in place. This is an issue that may need further study and the venue for that study has not been determined. This general permit is not the mechanism to address this issue.

4. One commenter questioned why the permit was more stringent than the original standard permit and questioned whether the proposed regulations within the permit are necessary for the quality of the Darby to be maintained.

   Response: The Big Darby Creek watershed has among the most biologically diverse waters in the Midwest. The watershed hosts state and national scenic rivers and is home to several endangered species. However, recent studies document declines in water quality and stream habitat some of which have been found to be directly related to construction activity. Among the most visible and widely publicized future threats to the Darby is conversion of farm land to suburban and commercial land uses, especially in Franklin County. As a result, Ohio EPA decided to develop an alternative general permit for storm water associated with construction activity specific for the Big Darby Creek watershed.

   This alternative permit implements many of the basic recommendations regarding the programs, activities and Best Management Practices developed through the Total Maximum Daily Load process and the State Water Quality Management Plan and 208 Plan. Ohio EPA believes implementation of these recommendations is necessary to protect the unique water quality and biological integrity of the Big Darby Creek system.

5. One comment questioned why Ohio EPA held the public hearing/meeting during working hours and not in the evening?

   Response: Individuals that were not able to attend the public hearing/meeting could have submitted written comments.

6. One commenter stated that it appears that Ohio EPA has allowed environmentalists to influence the Agency's decisions in regards to the permit.

   Response: The permit is based upon science, professional experience and knowledge and comments received from all interested parties.

7. It was requested that the following terms be defined within the permit: stream edge, soil data, drainage watershed, wood/forest, brush, meadow, pasture, managed wood, urban grasses, natural channel, channelized stream and bankfull channel.

   Response: The aforementioned terms will be defined within the permit.

8. One commenter stated that 40 CFR was referenced throughout the permit and requested clarification as to what it is.

   Response: 40 CFR is an abbreviation for Title 40 of the Code of Federal Regulations. The Code of Federal Regulations (CFR) is a codification of the rules published in the Federal Register by Executive departments and agencies of the Federal Government. The CFR is divided into 50 titles which represent broad areas subject to Federal regulation, with environmental regulations contained mainly in title 40. Each volume of the CFR is revised once each calendar year. Title 40 is revised every July 1. 40 CFR can be viewed at the following web site: http://www.epa.gov/epahome/cfr40.htm

9. Comments stated that the permit seems to only address future construction activities while not bringing those existing polluters into compliance such as municipal sewage treatment plants, home sewage treatment systems, poor agricultural practices and industrials facilities.

   Response: This permit does only address new, initiating ground disturbances of one acre or more as of the effective date of this permit; other types of pollution sources are addressed in other venues. Ohio EPA's National Pollutant Discharge Elimination System (NPDES) permitting program addresses pollutant discharges from other types of point sources for both existing facilities and are required for future discharges. Per 40 CFR 122.3(e), agricultural activities are exempt from the NPDES permitting program.

10. One commenter stressed that the permit gives great latitude to the applicant in choosing storm water controls. It was requested that the permit provide a list of resources and suggestions to aid in selecting appropriate controls; due to, the current Rainwater and Land Development manual is out of date.

    Response: Ohio EPA recommends that the erosion, sediment and storm water management practices used to satisfy the conditions of the permit, should meet the standards and specifications of the most current edition of Ohio's Rainwater and Land Development manual or other standards acceptable to Ohio EPA unless otherwise specified as a condition of the permit. The manual is currently being updated and the permit will be modified to reference the manual as the "most current edition".

11. One commenter requested the permit should provide that certain requirements may be presumed necessary, but that the permit applicant can provide information to the Ohio EPA confirming that an alternative storm water management, stream

buffer or infiltration method will be as or more protective of the Darby Creek. The land within the Darby Creek watershed includes a diverse array of land forms and land use and flexibility will be the key to maximize the efforts to preserve the Darby Creek.

Response: It is Ohio EPA's intent to allow for alternatives to conditions of the permit provided the alternatives demonstrate an equivalency to the standard permit conditions. Additional language will be included to address this issue.

12. One commenter questioned what support will be provided by Ohio EPA to local governments who play a role in overseeing development. The permit seems to take local control away from local governments that have worked to have 208 plans and building and zoning requirements.

    Response: It is not the intent of the Ohio EPA to have the permit take local control away from local government. As with the statewide Construction Storm Water general permit, permittees are required to comply with both the statewide general permit and local requirements if any exist.

13. One commenter questioned how the general public will be informed once the permit is issued. There were concerns that landowners will not have the resources needed to comply with the permit like large developers.

    Response: Once issued the permit will be public noticed in newspapers throughout the watershed and be posted on Ohio EPA's web site at www.epa.state.oh.us/dsw. The permit would be applicable to construction activities disturbing one or more acres of total land that are located fully or partially within the permit area. The threshold acreage includes the entire area disturbed in the larger common plan of development or sale.

14. One comment requested a wording change for Part III.F, TMDL Allocations. The draft permit states, "If a TMDL is approved for any water body into which the permittee's site discharges and requires specific BMPs for constructions sites, the director may require the permittee to revise his/her SWP3 to reflect load allocations set forth in the TMDL." (Underline added) In some cases, TMDLs may identify load reductions needed to meet water quality standards without stipulating specific BMPs. For example, there could be situations in which various combinations of BMPs could achieve the needed reductions, and permittees could select the mix of BMPs best suited for their situation. In order to address such situations, the following language was requested: "If a TMDL is approved for any waterbody into which the permittee's site discharges and control measures/BMPs for construction

sites will be required to achieve the load reductions set forth in the TMDL, the director may require the permittee to revise his/her SWP3 to reflect load allocations set forth in the TMDL."

Response: The permit has been modified as follows: "This general permit requires control measures/BMPs for construction sites that reflect recommendations set forth in the U.S. EPA approved Big Darby Creek TMDL."

15. One commenter requested that regional permits be considered for public entities such as Metro Parks that own and develop land throughout the watershed. This would allow the flexibility to focus preservation and restoration efforts in critical areas.

    Response: It is Ohio EPA's intent to review each site independently and consider impact for each site. Regional permits will not be considered at this time.

16. One commenter stated that the permit requirements should be independent and not based on requirements or recommendations found in other documents, such as the ODNR Rainwater and Land Development Manual. Dependence on other documents adds to the complexity of the permit and creates a moving target for the regulated community, especially when such documents are revised after the permit is effective. The permit needs to better distinguish between items that are simply recommendations (which are better suited for a separate guidance document) and items that are truly permit requirements.

    Response: The comment was taken into consideration, but no changes will be made.

17. Another comment on Ohio's "Rainwater and Land Development" manual stated that where this manual provides multiple options for BMPs, adequately protective performance or the most protective should be required in the permit. The applicant should explain how treatment is optimized. BMPs should meet performance goals that are determined to be necessary to meet stream quality goals. Otherwise, damaging practices might be permanently established. Also, Ohio's "current" "Rainwater and Land Development" manual was issued in the 1990s. It is unlikely this represents the most advanced methods of stream protection. Since this is not up to date, the Agency should refer to the current draft manual, or later version. The State of Ohio should develop standard protocol for evaluating these controls' effectiveness.

    Response: The Rainwater and Land Development manual is currently in the process of being updated. The individual review process associated with each site

will include the review of each BMP and performance standards.

18. A comment received suggested that the permit should be flexible to accommodate water quality trading in the future.

    Response: The comment has been noted.

19. One commenter stated that airports are required to operate under strict Federal Aviation Administration (FAA) rules which have requirements addressing hazardous wildlife attractants on or near airports. It was requested that alternative BMPs be permitted to comply with the permit requirements so compliance with FAA rules are also satisfied.

    Response: Alternative BMPs will be considered on a case-by-case basis.

20. One commenter requested clarification for Part III.G.1.h: "The name and/or location of the immediate receiving stream or surface water(s) and the first subsequent named receiving water(s) and the areal extent and description of wetlands or other special aquatic sites at or near the site which will be disturbed or which will receive discharges from disturbed areas of the project." What does the permit view as "at or near?"

    Response: The intent of this permit requirement is to obtain a general site description. As indicated within Part III.G.1.l.iv of the permit, within 200 feet of the site would be appropriate.

21. Multiple commenters stated that the permit seems to be narrowly aimed at residential and commercial development projects and does not consider the very nature of linear transportation projects and projects involving repairs to existing infrastructure. Due to the nature of transportation projects, stream setback and groundwater recharge requirements are unrealistic. As such, linear transportation projects should be excluded from the requirements of this permit and be held to the requirements of the statewide construction storm water general permit.

    Response: It is our belief that the permit provides options for mitigation in association with stream encroachment and groundwater recharge. We further believe that the potential impacts from the addition of impervious areas, including transportation projects should be mitigated to ensure the stream integrity. It is unclear why the commenters feel the permit is aimed just at developments, and why they feel the requirements are unrealistic given the linear nature of transportation projects. The permit requirements are needed to protect the sensitive nature of the Darby watershed irregardless of the source. As such, it is

not aimed at any particular type of applicant. If the commenter's suggestion was incorporated and transportation projects excluded, then the permit would be aimed at particular sources. The determination that the requirements of this permit are unrealistic is the opinion of the commenter; this is an insufficient reason to exclude a particular party from the permit.

22. Multiple commenters stated that singling out the Darby Watershed for regulations, that would in many cases have applicability to other watersheds, is unfair and represents poor public policy. Other commenters felt that development will cross political boundaries; therefore, basing the permit on the watershed is appropriate. One commenter proposed that conditions of the permit should also be applied to other watersheds such as Chagrin River, Grand River, Kokosing River, Little Miami River and Olentangy River which are undergoing rapid rates of urbanization. One commenter stated that the permit's conditions had been discussed within Franklin County but is now being applied to communities that had no input.

    Response: Ohio EPA intends on evaluating other watersheds throughout the State and developing applicable watershed specific permits where applicable and as resources permit. The public noticing of the permit was to allow for all interested parties to comment on the permit. Ohio EPA has reviewed all comments received and made changes accordingly.

23. Multiple commenters felt that the expiration date of the permit should be reduced from five years to two years. Waiting five years to review the effectiveness of the permit may allow irreversible degradation to occur.

    Response: As described in Part VI (Reopener Clause) of the permit, if there is evidence indicating potential or realized impacts on water quality due to any storm water discharge associated with construction activity covered by the permit, the permittee of such discharge may be required to obtain coverage under an individual permit or an alternative general permit or the permit may be modified to include different limitations and/or requirements. No change in the expiration of the permit will be made.

24. Comments were received which commended Ohio EPA for efforts taken to develop the general permit but hopes adequate resources are dedicated to administer and enforce the permit. One commenter stated that the statewide construction storm water general permit is not strongly enforced so how will this permit be administered and enforced.

    Response: Ohio EPA intends on dedicating adequate resources to perform Storm Water Pollution Prevention Plan (SWP3) reviews and site inspections to ensure

compliance.

25. Comments were received which felt that flexible regional solutions will be far more likely to protect and improve the Darby Creek than individual, project-specific standards. The project-specific requirements being proposed in the permit will significantly hamper the Darby Accord members' abilities to craft regional solutions and/or for property owners and land development interests to implement innovative and cooperative efforts to manage storm water, protect riparian areas and protect open space. The permit should be modified to allow for recognition of regional efforts and the potential that the Big Darby Accord process may result in greater long-term environmental protection for the region as a whole.

    Response: The permit as written will not preclude regional solutions to protect the Big Darby Creek watershed.

26. Comments were received which supported requiring SWP3s to be submitted and reviewed before issuance of general permit coverage. Another commenter stated that the 45 day application submission deadline can be extremely costly to applicants. Ohio EPA was encouraged to complete the review process within a maximum of 30 days. In addition, due to the seemingly inevitable delays in the regulatory process, it was expected that the permit be considered effective 45 days after Ohio EPA is in receipt. One commenter requested that Ohio EPA guarantee that review of NOI and SWP3 will occur within the 45 day time frame. One commenter proposed that for small construction projects the timeframe for submitting the permit application should be reduced to 21 days prior to initiating construction activities.

    Response: These comments were taken into consideration, but no changes to the permit will be made. Ohio EPA will dedicate the necessary resources to perform the review process but 45 days is necessary. Permit coverage will not be considered effective until authorization to discharge has been granted by the Director.

27. One commenter requested that Ohio EPA be available to provide a review and approval of the SWP3 prior to a project being bid, rather than 45 days prior to start of construction. Also, it was requested that Ohio EPA clarify the approval or review process that it intends to require when revisions to the SWP3 are needed due to field changes after construction begins.

    Response: Permit applications can be submitted earlier than 45 days prior to the commencement of construction activity for review and approval. As described in Part II.A of the permit, if more than one operator will be engaged at a site, each

operator shall seek coverage under the permit. Where one operator has already submitted an NOI prior to other operator(s) being identified, the additional operator shall request modification of coverage to become a co-permittee. In such instances, the co-permittee shall be covered under the same facility permit number. No additional permit fee is required.

Ohio EPA believes that the 45 days will be ample time to review the SWP3 independent of the bid process. In the event the bid process reflects any changes in the SWP3, an alternate review would be required. Ohio EPA considers the SWP3 a living document that can be updated on a weekly basis to reflect any changes associated with the dynamic process of construction. However, the SWP3 cannot be amended to neglect any of the conditions set forth in the permit.

28. Comments received felt the NOI and SWP3 should be made available upon request to other agencies such as the Ohio Department of Natural Resources and Soil and Water Conservation Districts, conservation organizations such as the Darby Creek Association and the general public.

    Response: Part III.C.2.b and c of the permit addresses this concern. Also, permit applications are available to be viewed by contacting Ohio EPA.

29. A comment requested clarification be provided on whether the existing guidance on routine maintenance activities excluded from small construction activity permitting still applies to this permit.

    Response: Yes. The routine maintenance exclusion from small construction activity permitting is applicable to this permit. Additional information can be viewed at: http://www.epa.state.oh.us/dsw/storm/routine_maint.html

30. A comment suggested that permit requirements should be based upon earth disturbance per drainage area and not per site or per project.

    Response: This comment was taken into consideration but no changes will be made.

31. One commenter requested that Ohio EPA consider developing a certification or volunteer monitoring process so trained members of other agencies, local conservation organizations and the general public could conduct construction site inspections and report possible violations or failing practices.

    Response: In the mid-1990s, the Ohio EPA Storm Water Section met with several county SWCDs to discuss a proposed memorandum of understanding (MOU)

between the Ohio EPA and SWCDs. The purpose of these MOUs was to provide participating SWCDs more involvement in assisting Ohio EPA in ensuring that the NPDES construction storm water general permit requirements are being implemented. As a result, there are currently 17 working agreements; whereas, Clark County SWCD, Franklin County SWCD and Pickaway County SWCD have agreements within the Big Darby Creek watershed.

The Ohio EPA construction storm water program cannot be delegated; therefore, these agreements should be characterized as an agreement for mutual cooperation. These agreements can, in no way, be construed as a contract, but rather an agreement to collaborate with the SWCDs. There are no monetary funds provided for these working agreements. Under these agreements, the basic expectations of the SWCDs are to: review construction site storm water pollution prevention plans (SWP3s) for adequacy, conduct construction site inspections, provide technical assistance to contractors/developers on the requirements of the NPDES storm water general permit for construction activity and communicate issues of non-compliance with Ohio EPA.

Ohio EPA has developed a certification program for volunteer monitoring data. A level 3 certification would be needed in order for the data submitted to be considered in a regulatory sense. Refer to http://www.epa.state.oh.us/dsw/volunteermonitoring/index.html for more information.

32. One commenter felt that it was inappropriate for the permit to require permittees to retain records for only three years after construction. It was requested that record retention be extended to address any questions which could arise in the future.

    Response: The comment was noted but no changes will be made.

LEGAL

33. Comments were received that stated the Ohio EPA is authorized to establish standards in the permit to assure that the discharge of storm water during construction (and to a limited extent post-construction) will not degrade the water quality in the Darby Creek. The permit goes far beyond regulating storm water discharges and into areas of land use planning which exceeds the Ohio EPA's statutory authority. Other comments suggested that the permit represents a taking of private property.

    Response: The director's sole focus in preparing the Darby Creek construction

storm water general permit is on protecting water quality and the aquatic and other uses of Darby Creek and its tributaries, not land-use planning. Although other governmental entities may be given independent authority to conduct land-use planning for purposes of protecting the public health, safety and welfare, or to manage land for flood control, those authorities do not prevent the director from satisfying his obligation to impose permit restrictions related to the protection of water quality and water quality uses.

Several provisions of law come into play in the design of the general permit. These provisions both authorize and mandate the director to include in the general permit the types of requirements he has.

First, R.C. 6111.041 requires the director to adopt water quality standards. The standards must "be designed to improve and maintain the quality of such waters. .. To enable the present and planned use of such waters for public waste supplies, industrial and agricultural needs, prorogation of fish, aquatic life, and wildlife, and recreational purposes." The director has adopted those standards in Ohio Adm. Code 3745-1-04, and 3745-1-07, et seq. Those water quality standards not only include numerical standards for pollutants in the waters of the state, but also designated uses for those waters. R.C. 6111.041 further provides that the director "shall implement the [water quality] standards . . . in the issuance . . . of permits."

Second, R.C. 6111.12 requires the director to develop an antidegradation policy and include "provisions ensuring that waters of exceptional recreational or ecological value are maintained as high quality resources for the future generations." R.C. 6111.12(A)(2). The antidegradation rule requires that "existing uses. . . . shall be maintained and protected." Ohio Adm. Code 3745-1-05(C)(1).

Against the backdrop of these mandates to protect water quality and water quality uses, R.C. 6111.03(J)(1) gives the director authority to set terms and conditions of permits. That section broadly provides that the director may "set terms and conditions of permits, including schedules of compliance, where necessary." There is no limitation to only numerical type standards on the discharges.

The United States Supreme Court has recognized that broad language to protect water quality can support requirements other than numerical limits on discharges, such as limitations on water flow minimums. PUD No. 1 of Jefferson County, et al. v. Washington Department of Ecology, 511 U.S. 700 (1994). Moreover, even where limitations are authorized in the form of effluent limitations, the courts have recognized that effluent limitations can include restrictions on the activity creating the discharge, such as "best management practices" (BMPs) and nutrient management plans. Waterkeeper Alliance Inc. v. USEPA, 399 F.3d 486 (2d Cir. 2005). Regarding construction activities, BMPs and storm water pollution

prevention plans have long been elements of the basic construction storm water permit.

The setback and recharge requirements in the Darby general permit are permit terms and conditions necessary to protect water quality and existing and designated coldwater, exceptional warmwater, and warmwater habitat uses in the Darby Creek watershed. The requirements are designed to protect the stream system from damage to the designated uses of the stream, and to address the addition of flow and pollutants to the stream from activity covered by the permit. Information and study resulting from the Darby TMDL investigations shows the creek is threatened by, among other things, sediments in storm waters and altered flows resulting from development construction that reduces the ability of precipitation to infiltrate into watershed soils, recharge the groundwater, and so recharge the creek. Setback requirements help preserve the natural riparian corridor and corridor's essential pollutant-filtering, shading, and temperature-moderating functions, as well as help preserve habitat for aquatic life that is a gauge of the health of the stream. Recharge requirements help guarantee groundwater levels sufficient to recharge the Darby and its tributaries during dry periods when surface runoff no longer adds to stream flow, and minimize the surface flows during wet weather. The recharge requirements thereby help ensure stream flows are less susceptible to exacerbated low flow conditions and increased, scouring wet-weather flows. These artificial alterations in streamflow, heightened by the effects of construction activities, can threaten the "propagation of fish, aquatic life, and wildlife," which permit standards are supposed to protect. Therefore, the setback and recharge requirements are necessary parts of the general permit.

The general permit is not a taking of private property without just compensation in violation of the Fifth Amendment of the United States Constitution. Regulatory takings claims require an analysis of the extent to which economically viable uses have been eliminated from a parcel of property by the regulation. No such analysis can even begin until the particular parcel of property at issue is identified. Mitigation provisions in the general permit will provide flexibility and allow a person to disturb acreage within setbacks areas or to lower recharge provided the damage is mitigated with conserved or restored setback zones or the generation of recharge credits through the construction of engineering controls (e.g., filtration ponds) or the conversion of land to a higher recharge potential.

Finally, the terms and conditions of the Darby general permit must be considered in light of R.C. 6111.035, which gives the director the authority to issue general permits, but only in limited circumstances. It provides that the director *may* issue a general permit for "the discharge of storm water." This section further provides that a "general permit shall not be issued unless the director determines that the

discharges authorized by the permit will have *only minimal cumulative adverse effects on the environment when the discharges are considered collectively and individually,* and if, in the opinion of the director, the discharges. . . authorized by the permit are more appropriately authorized by a general permit than by an individual permit." The section further provides that "the director, *at the director's discretion,* may require any person authorized to discharge. . . . under a general permit to apply for and obtain an individual permit for the discharge." The limitations contained in the Darby construction storm water general permit, including setback and recharge requirements, allow the director to identify a category of construction activity discharges to the environmentally sensitive and threatened Darby and its tributaries that are eligible for a general permit; that is, to identify a category of discharges that will have, as mandated by R.C. 6111.035, "only minimal cumulative adverse effects." If a person wishes to obtain a general permit, the person's construction activity must fall within these defining requirements. Otherwise, the director may choose, in his discretion, to require the person to obtain an individual permit. In an individual permit, there may be more flexibility for the permit applicant to propose a project that protects water quality and existing and designated uses. Should the situation arise that raises constitutional concerns, the individual permit will also give the director more flexibility to act consistently with any constitutional limitations.

34. One commenter requested clarification on Part III.C.2.c which states that a permittee may claim to Ohio EPA any portion of an SWP3 as confidential in accordance with Ohio law. The commenter felt this may be used as a mechanism to cover up inadequate levels of storm water treatment on site.

    Response: Reemphasizing the opening sentence of Part III.C.2.c, Ohio EPA will generally consider SWP3s as public record. Although it should be rare that any part of an SWP3 qualifies under an exception, there are nonetheless exceptions in public record laws (see R.C. Chapter 149) to the requirement that such records are available to the public. A person claiming confidentiality of any part of the SWP3 will have to notify Ohio EPA of that claim and supply information sufficient to show that the part qualifies for the exception and for confidentiality. Thus, meeting the relevant requirements for confidentiality will dictate whether any part of an SWP3 is kept confidential. That determination will not be dictated by a person's desire to cover up inadequate levels of storm water treatment.

35. Multiple comments were received which stated that the permit's riparian setback requirements are unnecessary to protect the watershed, impose land use restrictions outside the agency's jurisdiction and are beyond the agency's authority under R.C. Chapter 6111. One commenter stated the Ohio EPA's authority, under the storm water permitting program, extends only to protecting water quality from impacts associated with construction activity. It does not, and cannot, extend to a

regulation of land use. The permit's restrictions will undoubtedly effect a takings of property in violation of state and federal law. Moreover, given the apparent lack of technical support for some of the general permit's requirements, the courts may find a takings based solely on the lack of a rationale basis for prohibiting the development of some properties. One commenter stated that local governments should be the entity adopting riparian setback requirements.

Response: See response to comment 33.

36. Multiple comments were received which stated that the permit's groundwater recharge requirements are unnecessary to protect the watershed, impose land use restrictions outside the agency's jurisdiction and are beyond the agency's authority under R.C. Chapter 6111.

Response: Surface water (rivers, lakes and streams) and groundwater are intimately linked to each other within the hydrologic cycle. Forty to fifty percent of the total annual stream flow in the Big Darby Creek watershed is from groundwater (TMDL report, page 3-13). One of the major controlling factors of the amount of groundwater available to supply surface water flow is how much precipitation is able to infiltrate into the ground. The increase in impervious surface and soil compaction associated with development results in more runoff and less water available to soak into the ground. The result is an increase in peak flows and water levels and a decrease in stream flow under dry conditions. Such a decrease in the amount of water in a stream results in an increase in the number of times it runs very low or dry. Both of these conditions negatively impact the natural stream biota making it difficult to support the designated beneficial uses associated with the Big Darby Creek watershed. Maintaining existing groundwater recharge levels as this permit requires is, at a minimum, a necessary component of watershed protection. Also, see response to comment 33 regarding discussion of legal authority.

RIPARIAN SETBACK REQUIREMENTS

37. One commenter requested changes to the riparian setback requirements. The following was requested:

Preservation and Riparian Setback Requirements. The SWP3 shall clearly delineate the boundary of required stream setback distances. No construction activity shall occur within the delineated setback boundary except activities associated with restoration or enabling recovery of natural floodplain and channel form characteristics as described in Attachment B. Streams requiring protection

under this section are defined as perennial, ephemeral or intermittent streams with a defined bed, bank or channel. NRCS maps should be used as one reference and the presence of a stream requiring protection should also be confirmed in the field. Any required setback distances shall be clearly displayed in the field prior to any construction related activity. The following beltwidth equation should be used for all areas: $W_{EWH} = 147DA^{0.38}$.

Restoration. The SWP3 must restore natural form to previously channelized low-gradient headwater streams (ditches). At a minimum, restoration must include reducing entrenchment and may be accomplished by natural channel design, construction of over-wide channels or lowering high ground adjacent to the channel. Attachment B further defines the channel conditions necessitating restoration and specific targets for restoration.

Response: Language has been added to the permit exempting activities associated with restoration or enabling recovery of natural floodplain and channel form characteristics from riparian setback requirements. Also, Ohio EPA has decided to simplify the formula so that it is expressed as $W=133DA^{0.43}$ for all areas. However, it is possible to gather site specific empirical data to determine the appropriate streamway size. Attachment B has been revised to incorporate some of the suggested language.

38. One commenter requested clarification to four questions. (1)Could a landowner rebuild a home if the home is located within the delineated riparian setback and was lost due to fire? (2)Will the riparian setback requirements require that current structures be removed from the delineated setback areas? (3)Will the riparian setback requirements prevent a landowner from building new outbuildings and/or additions to their homes or garages? (4)Will individuals be reimbursed for land lost due to the delineated riparian setbacks?

Response: (1) The storm water general permit would not prohibit the rebuilding of the house. If the construction activity associated with rebuilding exceeded the one acre threshold, then coverage under the general permit would be required. It is possible that mitigation would be required under this scenario if the need for permit coverage is triggered, as well as applicable storm water controls and best management practices. (2) No. (3) The riparian setback requirements are only triggered when the need for coverage under the permit is triggered, which is the one acre of disturbed land threshold. Even if permit coverage is triggered, the setback requirements would not prevent a landowner from building within the setback, although mitigation requirements could be triggered requiring mitigation for the activity. One might question the wisdom of constructing new outbuildings in a zone that has been selected for its relatively higher probability of flooding, or that the stream channel might naturally migrate into the area, but this would also be a

very site specific evaluation (4) There is no land 'lost' due to delineated setbacks. The land remains as it was, land that is subject to a higher probability of flooding or of stream channel impacts. The delineated riparian setbacks are designed to ensure that adequate stream channel capacity is available as a result of land disturbing activities that will impact the stream channel in perpetuity. The stream channel and adjacent areas must be of sufficient size to provide the assimilative capacity necessary to process the additional pollutant loads that the land disturbing activity covered under the permit will cause. If the land owner chooses to imperil this capacity by building in the riparian setback, then mitigation to restore or improve the capacity of the system will be required.

39. One comment stated that permanent storm water management practices would adequately control storm water discharges into the Darby and its tributaries without the huge setback requirements.

    Response: Ohio EPA respectfully disagrees with the commenter's position. There is at present no known example where a sensitive aquatic ecosystem has been developed and standard Best Management Practice suites were protective of the water resource. It is Ohio EPA's belief that the setback requirements are an integral part of the stream's ability to manage flow and sediment loads in a state of dynamic equilibrium. The activities requiring coverage under this permit result in permanent alteration of the flow regime in the stream, and result in additional pollutant loadings to the stream. The setbacks are necessary to attenuate these impacts.

40. One commenter requested that direct storm water discharges to streams be prohibited. It was suggested that storm water be released on the inland side of the riparian setback corridor through outlets which are protected from erosion. Installing pipes through the setback would cause disturbance; discharge outlet pipes directly into the stream might also cause erosion. The riparian buffer would act as a quantity and quality control.

    Response: Direct discharges of storm water to Big Darby Creek will be prohibited without treatment as prescribed in the permit. All storm water directed into Big Darby Creek will be sent to an area where post-construction water quality treatment will be provided. Each site will be evaluated on a case by case scenario so that there will be no untreated direct discharges into Big Darby Creek.

41. Multiple comments were received which requested changes to the riparian setback requirements. Comments stated that use of the 100-year floodplain to establish stream setbacks is inappropriate. The 100-year floodplain is an abstract, risk based concept developed as a threshold for protection under the National Flood Insurance Rate Program (NFIRP) and there is no demonstrated relationship to

water quality. It was noted that use of the 100-year floodplain to designate stream setbacks was a topic of much discussion during meetings of the ESDA External Advisory Group ("EAG"). However, based on the lack of technical justification for this approach, consensus was never reached on this issue. The Ohio EPA must base its decisions on sound, defensible technical principles, not the goals of certain participants in the EAG.

One commenter stated that even Ohio EPA appears to question the legitimacy of extending setback limits to the limits of the "100 year-floodplain" for water quality protection purposes. On page B-5 (Appendix B) of the final TMDL report for Big Darby Creek, Ohio EPA responded to a comment as follows: "The active floodplain formula used in the TMDL report to establish recommended setback widths defines an area that is, or should be, frequently flooded. The purpose of this particular setback width is to establish and protect the 'streamway' - the corridor the stream naturally undulates in over time. Protecting this particular area will reduce a source of sediment by reducing bank erosion and it will also increase the capacity of the stream to assimilate sediment by providing areas to deposit it outside of the main channel. The FEMA 100-year floodplain is intended for a different purpose - that of defining an area of catastrophic flooding so that human life and economic interests are protected. Thus, the two definitions are needed to protect for different concerns."

Response: The final report for the ESDA-EAG, November, 2004 states on page 5 of the executive summary "the group recommends the buffer be the width of the 100-year regulatory flood plain as defined by FEMA flood insurance maps or the Hellbranch Overlay formula, whichever is largest, with a minimum of 200 feet (assumed 100 feet per side). The basis of the ESDA process was that consensus be reached on these items. Ohio EPA disagrees with the statement that consensus was not reached on this issue.

Ohio EPA has further reviewed the issue of the 100 year flood plain, and has concluded that the elevation based aspects of the 100 year flood plain provide an important means of ensuring that the stream way, and the area necessary to provide for removal of pollutants generated by the regulated activity will be provided as parts of projects covered under the permit. Ohio EPA also recognizes that these techniques are imperfect, and has provided the possibility of an alternative demonstration that will determine, based on site specific factors, that the stream channel and assimilative capacity have been protected, or are being enhanced by the project. We note that it is possible to redraw the FEMA 100 year floodplain under other regulatory processes.

42. A comment was received which stated that the proposed riparian setback requirements include a "100-feet on each side" [of the stream] criteria which, like

the "regulatory 100-year floodplain" limit is unrelated to stream or riparian zone geomorphology, ecology, or function. It is an arbitrary, outdated number which has been (and is still) used for convenience and as a compromise in the absence of better criteria and data about stream health and channel/riparian zone interrelationships. The current ODNR Rainwater and Land Development Manual recommends a width of two and one-half times the stream width or 50 feet (whichever is greater) as a minimum. Streams with small drainage areas should not be required to provide a 100 feet width.

Response: The ODNR Rainwater and Land Development Manual is a statewide manual meant to cover all streams. In the Big Darby Creek TMDL, Ohio EPA did an extensive analysis of a particular stream system. We received extensive public comment on the lack of a minimum buffer width in the draft of the TMDL report. Based on that comment, a review of available scientific literature, as well as considering the recommendations of the ESDA-EAG report, Ohio EPA opted to include a minimum buffer width. This minimum buffer width is based on the document *A Review of the Scientific Literature on Riparian Buffer Width, Extent and Vegetation* (University of Georgia, 1999). The 100 foot buffer is not an arbitrary or outdated number as the above document details; it is a scientifically justifiable number for a sensitive stream system such as the Big Darby.

43. A comment stated that for the purpose of protection from storm water impacts, a stream with a smaller drainage area should not have a smaller setback than a similar quality stream with a larger drainage area. A stream with a smaller drainage area would potentially be more directly impacted by storm water coming from a project area than a larger stream (which would have a greater volume of flow and a greater potential dilution of contaminants).

    Response: Ohio EPA has simplified the equations used in the final permit. An equation that will provide protection for downstream uses is applied.

44. One commenter suggested a more appropriate method to calculate the stream setback width may be to use the guidance listed under the Additional Criteria to Reduce Excess Amounts of Sediment, Organic Material, Nutrients, and Pesticides in Surface Run-off and Reduce Excess Nutrients and Other Chemicals in Shallow Ground Water Flow listed in USDA-NRCS Conservation Practice Standard for Riparian Forest Buffer, Code 391. This publication calls for a riparian zone width of "100 feet or 30 percent of the flood plain whichever is less, but not less than 35 feet." If additional storm water filtration is warranted by the pre and post-construction activities, an additional 30 feet of filter strip could be added to each side of the setback as stated in the Additional Criteria to Reduce Dissolved Contaminants in Run-off section of USDA-NRCS Conservation Practice Standard Filter Strip, Code 393.

Response: It is unclear why the suggested alternative is more appropriate than the setback method currently included in the permit. The suggested method appears to be an arbitrary assignment of a setback for the purposes of reducing some of the water quality impact from agricultural runoff. The minimum required width (35 feet) is the smallest width that the literature shows is needed to perform some water quality benefit. Note that the literature shows a much larger width is needed to reliably provide water quality treatment of runoff regardless of drainage area size of the receiving stream. Additionally, water quality treatment of overland runoff is just one function of a setback area. Other functions the setback needs to serve include protecting the streamway and providing sufficient storage capacity of flood waters to protect the stream integrity. The proposed alternative setback method does not include either of these functions.

45. A comment was received in regards to the statement "No structural sediment controls (e.g., the installation of silt fence or a sediment settling pond) or structural post-construction controls shall be used in a stream or the delineated setback." (Pg 16, Part III.G.2.b.ii), a linear transportation project with a stream crossing will disturb earth within setback area immediately adjacent to the stream, so a structural sediment control may be the only feasible option to control a discharge of sediment to the stream in that area. Also, this statement is a direct conflict with the ODNR Rainwater and Land Development Manual which states that a riparian strip is considered a post construction storm water quality treatment BMP (PCSW BMP). This manual states: "A forested buffer strip is a strip of riparian forest, ie., adjacent to streams, rivers, and other water bodies." Since a riparian strip is a PCSW BMP, a reduction should be applied to the water quality volume when using a riparian strip.

    Response: Issues will be evaluated on a case-by-case basis. Non-structural BMP's such as forested buffer strips would be protected under the riparian setback requirements. In addition, the permit's post-construction requirements would be applicable to ensure the integrity of the watershed is maintained.
    If there is an intrusion into the setback area, then the area of the intrusion is part of the disturbed construction area, and as such, is not considered a part of the setback area. All mitigated intrusions will require specific controls during and following the construction of the project.

46. A comment received stated that within Franklin County, as with the other counties, the multiplier should be 133 in the formula determining the riparian corridor width ($W=117DA^{0.43}$). As proposed, the formula for Franklin County calculates a smaller riparian setback than for other counties. The multiplier 133 was the current multiplier recommended by ODNR at the time, but the EAG used an out of date

publication and failed to update this. This was brought to the attention of the ESDA EAG during its meetings.

Response: Ohio EPA has decided to simplify the formula so that it is expressed as $W=133DA^{0.43}$. This formula is protective of downstream uses. However, it is possible to gather site specific empirical data to determine the appropriate streamway size.

47. Comments were received that supported use of the "streamway" formulas proposed in the permit because they represent a reasonable and practical approximation of the "active floodplain"; whereas, the most current Ohio Department of Natural Resource's (ODNR) equation should be used for the entire watershed. One commenter stated that there is significant question regarding the applicability of the active floodplain concept to agricultural ditches and other highly modified channels such as the Hamilton Ditch.

    Response: Highly modified streams remain that way due to repeated expenditures of money to fund deepening, dipping and straightening of these streams. In the absence of intervention, eventually they will return to the dynamic equilibrium that is evidenced in a natural stream channel. As they return from a state of disequilibrium (straight) to equilibrium (sinuous) these stream channels will be even more prone to movement, making the stream setbacks relatively more important rather than less. The permit recognizes that when such modified systems have extremely low gradient energy this natural equilibrium process would be greatly enhanced by stream restoration in combination with a setback protection. It allows stream restoration to occur in these areas in lieu of protection of the 100 year floodplain area, although the other setback requirements still apply.

48. A comment stated that stream setbacks must be adequately wide for all use designations – Because streams meander based on physical conditions and not on Clean Water Act use designation, Warmwater Habitat (WWH) and Modified Warmwater Habitat (MWH) setbacks need to be increased to the width proposed for Exceptional Warmwater Habitat (EWH) streams. Very importantly, this setback width is needed not just to protect the initial tributary, but also the stream and mainstem it flows into. Streams with smaller setbacks, such as proposed, are more likely to pollute key target streams, such as Hellbranch Run, Little Darby Creek or Big Darby Creek. Therefore, streams with these smaller setbacks, many of which are already in non- or partial attainment, are less likely to meet Clean Water Act goals. If these tributaries are only given these proposed narrow setbacks, the portions of the mainstems they flow into also are less likely to achieve goals. In contrast to what Ohio EPA is proposing, some streams might be presently classified at lower use designations because, at least in part, presently they have low-width and poor riparian conditions, which the proposed lower

riparian widths will perpetuate. Delivery to the receiving stream and hydrologic benefits of setbacks are the same. This problem of lesser setbacks is especially notable because many of the streams outside of Franklin County do not have a use attainment assigned, and under this proposal would receive the lowest, and inadequate, stream setback. All setbacks should meet the proposed EWH setback for those outside Franklin County (the most protective in this draft permit).

Response: Ohio EPA has decided to simplify the stream setback calculation, fixing the calculation at $W=133DA^{0.43}$. This setback should be protective of downstream uses. An alternative procedure allowing for site specific determination of the streamway has been added to accommodate those situations where this formula is overly restrictive.

49. A comment recommended that when using beltwidth formulas to determine riparian setback distances that Ohio EPA provide a map showing the setback area centered over the meander pattern (or the mathematical average of the centerline) of the stream. New language should provide a protection zone that is generally parallel to the direction of the valley (while the stream may or may not meander greatly) and that incorporates the lowest elevation land utilized by floodwaters and channel migration. Suggested language included: "The setback area shall be centered over the meander pattern (or mathematical average centerline) of the creek or river. If the land on one side (excluding levees) of the creek or river is more than 100% greater in bank height (measured from water surface to the top of bank during low flow and averaged over the length of the parcel), then the setback area location shall be adjusted so that the land area adjacent to the creek with the lowest elevation is included to the greatest extent possible while retaining the majority of creek or river area within the setback area. In cases, where the creek or river extends to the edge or beyond the setback area, that area shall be extended a minimum of 100 feet beyond the top of the streambank."

    Response: Due to the uncertainty at this time in implementing the suggested language, Ohio EPA has retained the setback calculation. However, Ohio EPA has provided an alternative where the intent of the suggested language could be accomplished, but has added the requirement that it be determined based on site specific measurements and information to allow for calculation of the actual streamway at a specific site.

50. One commenter proposed that setback requirements should also include steep slopes and wetlands.

    Response: The purpose of the riparian setback is to provide for water quality benefits, and to protect for long term natural channel movement. Wetland

protection is regulated separately. There is insufficient data at this time to appropriately determine an applicable relationship between slope angle and setback width needed for water quality benefits.

51. Multiple comments proposed that the setbacks should be calculated from the Ordinary High Water Mark (OHWM), not the centerline.

    Response: The setback calculations are based on meander pattern itself, not the centerline. The permit provides a default option to determine the setback area from the centerline. Changing this default option to the use of the OHWM only adds another layer of complexity to the setback determination without significant additional water quality benefit and is not any more or less correct than using the centerline. The reason it provides little additional water quality benefit is that in most cases it will be either the 100 year floodplain or the 100 foot minimum that will determine the actual setback width. Generally, the streamway calculation will be less than one or the other of these widths.

    The permit provides an option for a site specific determination of the actual streamway, which is based, in part, on the elevations of the valley the stream flows through and is not based on any particular reference point of the current stream pattern. This site specific determination is the technically correct way to define the streamway setback zone. An additional 100 feet per side from the defined streamway is required for water quality runoff purposes.

52. A commenter requested that riparian setback requirements and mitigation begin at the edge of the stream (as described in the fact sheet) and not from the centerline of the stream (as described in the draft permit). Impacts within the stream are already highly regulated through 404/401 permits, which include mitigation of those permitted impacts.

    Response: Refer to the response for 51.

53. A commenter requested that Ohio EPA should clarify when "sufficient effort" is made to avoid mitigation before the applicant argues for using this methodology. There should be criteria regarding when intrusion into the setback zone is “necessary to accomplish the purposes of a project."

    Response: The mitigation ratios established in the permit are designed to provide a disincentive for intrusion into the setback zone.

54. A commenter stated that numerous environmental regulations already require linear transportation projects and projects involving repairs to existing infrastructure

to avoid, minimize, and fully mitigate impacts to aquatic resources. Many of these projects, such as stream crossings, simply do not have the luxury to avoid or minimize intruding into a stream setback corridor, so it is inappropriate for such projects to be subject to riparian setback requirements.

Response: The permit allows for intrusion into the setback zone and requires mitigation for those intrusions. Linear transportation projects introduce pollutants, runoff and impervious surfaces into the setback zone. Mitigation requirements are appropriate to compensate for these intrusions.

55. A commenter requested that the sentence “No construction activity shall occur within the delineated setback boundary”; (Part III.G.2.b) be qualified with a statement that if intrusion into the setback zone is necessary to accomplish the purposes of a project, then mitigation is required as described in Part III.G.2.b.iii.

    Response: Ohio EPA agrees and language will be included within the permit.

56. One comment questioned the following statement "Streams requiring protection under this section are defined as perennial, ephemeral or intermittent streams with a defined bed, bank or channel.", this sentence should be changed to read "... streams with a defined bed and bank or channel." A drainage ditch is not a regulated stream unless it has both a defined bed and bank (channel). This definition would be more consistent with the recently released 401 stream mitigation document and the headwater stream criteria in Attachment B Part 1, and with the Primary Headwater Habitat (PHWH) stream definition listed in the Field Evaluation Manual for Ohio's Primary Headwater Habitat Streams , V 1.0 (Ohio EPA, September 2002). (Pg 14, Part III.G.2.b)

    Response: The language that was selected was based on a consensus recommendation of the ESDA-EAG, and does not differ materially from the suggestion.

57. Multiple commenters requested that riparian setback requirements should not be different for Franklin County then the rest of the watershed.

    Response: Ohio EPA has decided to consolidate the setback requirements in order to be protective of downstream uses. The setback calculation to be used in the absence of site specific measurements and determinations of the streamway is $W=133DA^{0.43}$.

58. One commenter requested that the Franklin County setback requirements need to be increased. Franklin County stream setbacks are now proposed at distances

less than those in other counties. Because of the negative impacts of threatening urbanization, this is unacceptable. All calculations need to increase Franklin County's stream setbacks to be at least the most recent formula used by ODNR in their 2005 draft "Rainwater and Land Development" manual ($W=133DA^{0.43}$).

Response: The formula has been changed to $W=133DA^{0.43}$ in all instances.

59. One commenter requested that graphic examples in calculating setback requirements be provided for further clarification.

    Response: Please see Chapter 4 of the final Big Darby Creek TMDL for an example.

60. Many commenters requested that riparian setback requirements only apply to natural streams and not man-made ditches. As is, the permit requires protection of storm water conveyances, which are not streams, and these conveyances need restoration not protection.

    Response: State law requires that man-made water conveyances such as ditches be considered waters of the state. The aforementioned conveyances are conduits for pollutants to enter downstream waters, and federal regulations require that the standards that apply to these types of streams be protective of downstream uses. Ohio EPA respectfully disagrees with the position taken by the commenter.

61. Comments received stated that the permit provides a good direction to improving water quality but lacks opportunities to restore critical habitats. Commenters requested that the permit be revised to include permissive or conditional uses within delineated setbacks such as stream restoration, man-made ditch restoration and stream bank stabilization activities that are intended to improve water quality. As such, these activities which are intended to improve water quality should be exempt from mitigation requirements. Commenters also requested that the permit include permitted and conditional uses in riparian setbacks. The City of Columbus, 208 Plan and External Advisory Group's permitted recommendations included passive recreational activity, removal of damaged or diseased trees and revegetation or reforestation. Also, permanent post-construction BMPs should be permitted within delineated setbacks. Other commenters questioned whether agricultural activities and conservation practices are permitted within delineated setbacks.

    Response: The permit was not intended to be written such that restoration activities would be precluded. Adjustments were made to the language of the permit to clarify this position. Agricultural activities are not subject to the terms of

this permit. Agricultural activities within the setback that are consistent with relatively frequent flooding, and employ best management practices to minimize pollutant loads are not inconsistent with the intentions of the permit or the TMDL.

62. Multiple comments were received on the permit's requirements associated with riparian setback mitigation. One commenter requested clarification on the scientific rationale for the mitigation ratios. Comments questioned whether plantings and monitoring will be required. Another commenter stated that riparian setback mitigation requirements are excessive and ill defined. The commenter was concerned that dealing with this on a site-by-site basis will result in excessive delays in permit approvals. It was proposed that mitigation ratios should be 1:1 or less if no meaningful buffer is present and/or less aggressive planting requirements. The riparian setback mitigation requirements will tax Ohio EPA's ability to timely review storm water permit applications and require long-term oversight.

    Response: The intent of the mitigation ratios was to compensate for the increasing severity of the impact to water quality as an intrusion into the setback moves from the periphery of the setback towards the stream edge. They are also designed to provide a disincentive for intrusions into the setback that go all the way to the stream edge.

63. A comment stated that this permit condition does not appear to include native vegetation within the setback distance. Without native vegetation, the stream setback will have much lower quality, and would defeat the purpose of the setback. How will the agency ensure the habitat goals of the TMDL and ESDA- EAG are met? Others, such as the Hellbranch Watershed Forum also are recommending native vegetation in the stream corridor (see their 2005 recommendations to the Big Darby Accord).

    Response: Ohio EPA fundamentally agrees with those recommending the use of native vegetation in the setback distance; however, there does not appear to be a tangible water quality benefit to making a distinction between native vegetation and non-native vegetation. Habitat targets included in the TMDL are voluntary targets that will assist people in habitat restoration activities should they choose to engage in them.

64. A comment stated that linear transportation projects involving stream crossings will intrude into all three setback zones, so the mitigation requirements are unrealistic and excessive. Use of an "over-wide" ditch design should satisfy the riparian setback mitigation requirements for linear transportation projects.

Response: Use of over-wide ditch designs may indeed be sufficient to satisfy the riparian setback mitigation, where this technique is applicable, but linear transportation projects do have impacts on these streams, which will need to be mitigated.

65. A comment stated that riparian setback mitigation requirements should be based upon the final impervious drainage area and not the disturbed area during construction. A riparian strip is a post construction storm water quality treatment BMP that is placed to provide water quality treatment. The Rainwater and Land Development Manual states, "They are designed to remove pollutants associated with urban storm water runoff by deposition, absorption, plant uptake, denitrification, and other processes, thereby protecting water quality". Project areas that are not impervious will be restored to a vegetated riparian state and become part of a treatment train for water quality treatment.

    Response: Ohio EPA disagrees with this approach. The riparian setback is based on the drainage area of the stream, which determines the amount of runoff that the stream system must be capable of processing. Disturbance of this area during construction will impair its ability to infiltrate rainwater as well as making the area vulnerable to introducing sediment to the stream during construction. Any disturbance of this area would require that storm water from the disturbed area would need to be directed to some sort of BMP for treatment, as well as triggering the mitigation requirements of the permit. It is recommended that the setback be left undisturbed except in instances where it is necessary to disturb the area to perform restoration activities.

66. One commenter requested that for riparian setback mitigation the zones (1,2 and 3) should only be applied in areas where the riparian setback defaults to a minimum of 100 feet on each side as the greatest of the possible setback distances as defined in Part III.G.2.b.i and ii. In areas where the riparian setback is determined by either the width of the 100-year floodplain or $W_{EWH} = 147DA^{0.38}$, the following mitigation criteria was recommended:
    1. Zone 1 should be defined as the floodway portion of the 100-year floodplain or the floodway portion of the beltwidth and any steep slopes or bluffs directly adjacent to the stream having a slope equal to or greater than 20% or a D slope as defined by the USDA Soil Survey. Any disturbances within these areas should be mitigated at the 4:1 mitigation level with at least 1/4 of the mitigation area being in the form of complete stream restoration. The remaining mitigation can be in the form of restoration or protection.
    2. Zone 2 should be defined as any portion of the 100-year floodplain or beltwidth beyond the floodway boundary. Any disturbances within these areas should be mitigated at the 3:1 mitigation level within Zone 1.
    3. Eliminate Zone 3.

Response: The comment is noted.

67. Commenters stated that the permit's Attachment B describes over-wide channel design for restoration of previously channelized low-gradient headwater streams (drainage ditches) is not a proven restoration technique. It would be more appropriate to require natural stream channel restoration. One commenter stated that the use of over-wide channel design commits streams to very low habitat design standards and consequently low biodiversity.

    Response: The comment is noted. Streams to which the Attachment B restoration option applies are already very poor habitat. Permittees will have the option of using full natural channel restoration if they choose.

68. A comment was received about requiring at least one-fourth of stream restoration activities be conducted in accordance with the "over-wide channel design" in Attachment B is seemingly irresponsible and arbitrary. Have the stream "restoration" techniques listed in Attachment B been thoroughly tested and peer reviewed? Although the channel to be restored would have been previously modified, if it is not deeply incised or entrenched (as required by Attachment B Part 1) it is probably fairly stable (little bank erosion). While providing such a channel the space to create its own meanders/morphology intuitively seems like a good idea, has any consideration been given to the possibility that this type of in-stream construction will generate large quantities of erosion and run-off until the constructed channel bed has become stabilized with plant materials (possibly 1-2 years)? This erosion may have a significant effect on downstream substrates (causing, at a minimum, temporary embeddedness). Have the ecological costs associated with this type of restoration project been weighed against the benefits?

    Response: There may be short term impacts associated with this or any other channel restoration activity, but the long term benefits of a stable channel are significant in terms of the long term health of the stream system. In addition, sediment and erosion controls will be required concurrent with stream restoration.

69. The mitigation requirement that at least one-fourth of Zone 1 impacts involve stream restoration in accordance with the "over-wide channel design" in Attachment B could result in more harm than good to a stream. In cases where a stream channel will be directly impacted or relocated by a construction project, this type of stream restoration may be appropriate as a mitigation condition of the 401 WQC (the stream would be impacted anyway).

Response: Mitigation for a 401 certification is different from mitigation for intrusions into the setback zone.

70. Many linear transportation projects are designed to avoid direct impacts to surface waters of the state (streams and wetlands) so that a 401 individual WQC would not be needed, to meet State and National Scenic River Program requirement, etc. However, disturbance to any area within Zone 1, even if it avoids direct impacts to the stream, would require mitigation through the implementation of the extensive channel restoration work proposed in Attachment B. This type of in-stream work would require the permittee to seek a 404 Individual Permit and an Individual 401 WQC for impacts that they were trying to avoid.

    In addition to the cost and time associated with obtaining such a permit, the US Army Corps of Engineers and the OEPA-401 Unit may question whether the restoration project would result in greater impacts to the stream than the construction project that is being proposed for (since it would not be impacting any waters).

    If OEPA mandates the use of the "over-wide channel design" restoration and results of these types mitigation projects do not meet expectations, OEPA must be prepared to take responsibility for any failure of the mitigation project. Typically, 404/401 mitigation requires years of monitoring to ensure that the mitigation has successfully replaced an impacted resource. For example, if a Class II primary habitat headwater stream is impacted, will the required "over-wide channel design" result in a stream that contains the ecological characteristics to have a HHEI score for a Class II stream? The permittee should not be held responsible for any failure that may occur from implementing a mandated restoration technique (assuming the project is constructed per plan). Mandating a restoration technique is contrary to what is written in the most recent OEPA Stream Mitigation Document, which does not require any specific methodology, technology, or technique for stream restoration.

    OEPA should thoroughly review its decision to utilize this type of in-stream work as mandatory mitigation before including it in a storm water general permit. If restoration projects become a mitigation requirement, we recommend that less invasive alternatives (such as habitat improvements, bank stabilization, or riparian plantings) be included as other options in Attachment B.

    Response: There is confusion here regarding mitigation that may be required for 404/401. Mitigation under a 401 certification is different from mitigation for intrusions into the stream corridor and will need to follow the 401 practices and standards applied to that mitigation. A previously channelized headwater stream that is eligible for restoration using the over-wide channel approach in Attachment

B is unlikely to have the perennial pools necessary to support a Class II headwater biological community. Most of these channels are in such a state of disturbance that if there are perennial pools, habitat is still likely to be limiting.

Contrary to the commenter's statement, the over-wide channel is not a mandatory restoration technique but an alternative. Full natural channel restoration is also an alternative.

71. A commenter requested that the current draft text of Attachment B be replaced with the following:

Part 1
Previously channelized low-gradient headwater streams (ditches) shall for the purposes of this permit be defined as having all of the following characteristics:
* Less than 10 square mile drainage area
* Low gradient and low stream power such that in spite of their straightened and entrenched condition incision (down-cutting) is not evident.
* Entrenched, entrenchment ratio <2.2
* Straight, sinuosity of the bankfull channel <1.02

Part 2
Restoration may be accomplished by any natural channel design approach that will lead to a self-maintaining reach able to provide both local habitat and watershed services, for example, self-purification and valley floodwater storage.
* Construction of a floodplain, channel and habitat
* Over-wide channel design by excavation down to the elevation of the stream bed uniformly across the entire frequently flooded width
* Floodplain excavation by excavating down to the elevation of the self-forming floodplain

The primary target regardless of design approach shall be the frequently flooded width, which should be maximized; preferably over 10 times the channel's self-forming width. Five times the self-forming channel width may still be acceptable particularly on portions of the site if greater widths are achieved elsewhere. Widths down to 3 times the self-forming channel width should be limited in extent.

Response: As recommended by the Ohio Department of Natural Resources, Attachment B has been modified in accordance with some of the aforementioned language.

72. Another comment on Attachment B was as follows:

Part 1 - “past channelization has not resulted incision” – This statement is incomplete and it is hard to tell what the criterion and the Agency’s intent is.

“drainage areas less than 16 square miles” – This condition is far too lenient and, because most tributaries drain far less than this area, sets an inadequately low and non-protective design standard for most tributaries of the Big Darby Creek. For example, almost half of the Hellbranch Run, and much of the Robinson Run and Sugar Run watersheds, all under the imminent threat of development, would be subject to this low standard. Numerous unnamed tributaries would be inadequately protected. Instead, all streams should have Natural Channel Design as the restoration goal.

Response: The intent of the use of the over-wide channel is to provide an efficient restoration method for previously channelized waterways that are not connected to essential low lying land that the serves as flood plain. Where a stream channel is connected to functional low lying land, the over-wide channel is not an available restoration tool.

Part 2
Natural Channel Design should be the restoration goal - . As stated above, the proposed “over-wide channel design” is not acceptable and would probably perpetuate low levels of biodiversity. The design for stream restoration in the Big Darby Creek watershed should be at the highest level possible, and strive to meet Exceptional Warmwater Habitat. It should have goals of restoration of the highest use designation and of Natural Channel Design.

Unless the Ohio EPA has information that proves the proposed design will reach a use designation such as Exceptional Warmwater Habitat, it should not be set as the goal. Because of limited habitat development, the design proposed in Part 2 will perpetuate low biological diversity.

Response: The over-wide channel design is only applicable to low gradient, previously channelized head water streams, a subsection of the streams in the watershed. Many of these streams cannot achieve WWH status due to the lack of habitat. The over-wide channel design allows for efficient incremental improvement of these existing poor habitats.

GROUNDWATER RECHARGE REQUIREMENTS

73. Multiple comments received proposed that the pre-development groundwater recharge volume should be calculated using a land use-soil group pairing that is more reflective of a natural condition, i.e. Wood/Forest or Meadow, rather than the existing land use-soil type pairing on site which typically is tiled agricultural.

    Response: Ohio EPA acknowledges that establishing a pre-development baseline condition reflective of more natural conditions would be beneficial to the Big Darby system. However, the NPDES program is based on protection of a designated use and does not generally require stream restoration or improvement of a condition the permittee is not responsible for unless mitigation requirements are triggered. Similarly, the Darby Stormwater Permit does not require an improvement to the existing condition; instead, it requires at least no net change.

74. One commenter stated that the equation for ground water recharge as shown in the draft permit utilizes a variable that is based upon the land use as determined by the designer. We would suggest using a method that uses a runoff coefficient (based upon the impervious ratio) that is not subjective. The 2000 Maryland Stormwater Design Manual, Volumes I & II utilizes this approach. The equation should look identical to the WQv equation, except it should have the regression constant set (for infiltration) and it should have a soil specific recharge factor applied.

    Response: Definitions for land uses are included in the final permit. Determination of the appropriate land use is comparable to determining the impervious ratio. Both have a degree of subjectivity associated with them. The equations used in the Maryland storm water design manual are not sufficient to calculate the recharge potential of land not being developed. They are designed specifically to calculate a volume of recharge to be addressed by best management practices other than land conversion. It is Ohio EPA's intent to encourage land use conversion to promote groundwater recharge as this is a more reliable method to gaining recharge than are structural BMPs. The Maryland equations view all pre-development land use as equal; however, forested and land left in a natural state has a higher recharge potential than agriculturally managed land. The method used by the Ohio EPA reflects this, and should encourage development to occur on land uses already modified and should encourage protection of natural land.

75. A commenter stated by using soil groups in the equation for ground water recharge, the underlying geology is ignored and should be consider in calculating the recharge rate.

Response: The determination of groundwater recharge potential has been revised to include additional consideration of the underlying geology.

76. A comment stated that antecedent moisture conditions and soil porosity should be considered when addressing pre-developments rates of groundwater recharge. These items are related to the infiltration rates and could play a role in banking infiltration credit.

    Response: Soil porosity and antecedent moisture conditions are accounted for in the method used to establish the groundwater recharge values listed the permit. Daily weather data from 1994 - 2004 and soil data coverages were used in the calculations.

77. One commenter suggested a reduction to the ground water recharge volume should be applied when using over-wide ditch design. A widened ditch will promote ground water infiltration due to the decreased depth of flow and lowered velocities.

    Response: The effect of over-wide ditch construction on groundwater recharge is unclear. The removal of riparian vegetation and potential soil compaction from the equipment widening the ditch may result in an initial decrease to groundwater infiltration. Over time, groundwater recharge may increase over that of the pre-widened state. However, no reduction to the ground water recharge requirements will be applied specifically for the use of over-wide ditch design.

78. One commenter requested that Ohio EPA provide guidance for determining the land uses listed in Table 1. For example, how should the permittee distinguish between meadow, pasture and urban grasses?

    Response: Guidance on land use terms will be provided in the final permit.

79. One commenter stated that regarding the preferred method for mitigation for groundwater recharge impacts (land conversion), ODOT may not have the legal authority to use eminent domain (or possibly even spend money on willing sellers) to mitigate for groundwater recharge impacts. Unless ODOT acquires this authority, most projects would likely rely on structural BMPs. Assuming that in at least some circumstances structural BMPs are used, how is the "groundwater pollution potential" defined? How does a permittee determine if their project involves a site with little risk of groundwater pollution potential? Is pollution potential based on DRASTIC mapping, Drinking Water Source Protection Areas, Sole Source Aquifers, etc?

Response: Guidance on how to determine the potential to pollute groundwater will be included in the final permit.

80. One commenter stated that groundwater recharge may be important to encourage aggressive preservation of infiltration zones in some areas but is less important in others. One commenter stated that the recharge rates exceed rates established by ODNR. Absent the data to support this extremely aggressive requirement, it appears to be targeted more at limiting development and controlling land use than protection of water quality, particularly with respects to water quality discharges from construction sites. It was requested that the science behind developing groundwater recharge values be provided. Another commenter requested that Ohio EPA explain how recharge rates were determined and how these rates were determined to be protective of biodiversity that the Hellbranch Run and Big Darby Creek supports or has supported. Also, clarification was requested on how antidegradation goals are being met by this approach.

Response: The recharge rates included in table 1 include both baseflow and deep aquifer recharge. Most groundwater studies including several done by ODNR are based only on the baseflow portion of groundwater recharge. Table 1 in the final permit will be revised to reflect the potential of areas to recharge the deeper aquifer.

The model BasinSim was used to establish the hydrologic regime in the Darby watershed. The model was calibrated to existing data and then run using single land use and single hydrologic soil group types. The groundwater recharge associated with these single land use - soil type groupings produced the values in Table 1 of the draft permit. For further information, please contact Erin Sherer at erin.sherer@epa.state.oh.us or at (614) 644-2890.

The recharge requirements are intended to at least maintain the existing groundwater recharge as the watershed develops. Lack of groundwater has not been conclusively identified as an existing stressor to the biota so maintenance of at least current levels should be adequate. The incorporation of the Darby Accord land use plan conditions, and the efforts already underway to re-connect several ditched areas to a flood plain should result in long term gains to the overall groundwater recharge regime if current recharge rates are protected at developing sites. Antidegradation goals are being met by this approach by requiring no net change to the recharge even as the watershed develops.

81. Commenters felt the groundwater recharge requirements appear to be a mechanism to promote open space and prevent development. It appears that the only purpose of mitigation within the Big Darby Watershed is to set aside land

through conservation easements and not to preserve meaningful recharge. This is particularly true given that the requirement applies throughout the watershed, regardless of the land's proximity to the Darby Creek or its tributaries. Some commenters questioned whether landowners will be compensated for this economic loss and if the State of Ohio will be purchasing the property that will be "undevelopable" due to provisions of the permit.

Response: The comments are noted. The recharge is based, in part, on soil type which generally changes to a higher recharge potential in areas proximate to streams. The Darby Accord plan includes a mechanism to create economic value of land reserved for open space.

82. One commenter stated that the rationale for relating groundwater recharge to land use by soil group is not presented. The TMDL contains no land use-soil group data as presented in the permit. The presumed support document for groundwater recharge, *Use of Streamflow Records and Basin Characteristics to Estimate Ground-Water Recharge Rates in Ohio* (Ohio Department of Natural Resources Bulletin 46), estimates groundwater recharge on the basis of characteristics that include long-term mean annual precipitation, soil infiltration rate, glacial geology, thickness of glacial deposits, bedrock geology, and physiology. Land use was specifically excluded as a recharge characteristic.

Response: The comment is noted. The presumed support document listed above was not used as the method for relating soil type with land use. Refer to comment 80 for contact information.

83. One commenter stated that the recharge rates listed in Table 1 of Part III.G.2.c.i are not substantiated by information presented in the TMDL and referenced supporting documents. The only supporting groundwater document specifically identified in the TMDL is Ohio Department of Natural Resources Bulletin 46, *Use of Streamflow Records and Basin Characteristics to Estimate Ground-Water Recharge Rates in Ohio*. According to Bulletin 46, recharge rates in Ohio range from 3 to 16 inches per year, with a median of 6 inches per year. Bulletin 46 further indicates that average groundwater recharge within Big Darby watershed is 6 inches per year, exclusive of land use. This sharply contrasts with the Table 1 values, which range up to 17 inches per year of groundwater recharge. Given the potentially far reaching land use impact on this requirement of the permit, it must be based on sound technical grounds. Similarly, Ohio EPA's own guidance "Acceptable Ground Water Recharge Rates for SESOIL Modeling" provides that conservative estimates for ground recharge rates range from 4-10 inches in silts and silty clays to 2-4 inches in tills and clayey silts. This is clearly inconsistent with the recharge rates provided in the permit. The permit should both incorporate realistic recharge rates and allow applicants to make site-by-site evaluations of

infiltration rates and the potential for groundwater recharge or contribution to stream base flows. A generic and overly constrictive standard is unsupported.

Response: The commenter is referred back to Table 1 of the draft permit for further study. The ODNR study referenced in the TMDL and the above comment estimates baseflow recharge only. The TMDL also estimates an additional 3 inches per year of recharge to the deeper aquifer. The baseflow recharge of 6 inches from the ODNR report plus the additional 3 inches recharge to deep aquifers results in a total of 9 inches per year total groundwater recharge per year on average in the Darby watershed. The majority of the Darby watershed is tiled agricultural in hydrologic soil group C. From Table 1 of the draft permit, this soil group and land use pairing gives the expected 9 inches of total groundwater recharge. The table must be viewed from a land use and soil group perspective. Very little of the Darby watershed is in forested - A soils. The areas that are likely do experience 17 inches per year of groundwater recharge. The river gages and existing baseflow do not reflect this high recharge due to the prevalence of agriculture and lower infiltration potential soils throughout the watershed as a whole. The final permit has a revised Table 1 to better target areas where deep aquifer groundwater recharge has potential to occur.

84. One commenter stated that groundwater recharge provisions should not be included within a storm water permit which should be restricted to the quantity and quality of storm water discharges.

Response: See response to comment 36.

85. One commenter stated that the requirements involving ground water recharge rates must relate to the calculation of the water quality volume. The amount of ground water recharge mitigation is excessive based on the impacts and the preferred mitigation method (land conversion) will be very difficult or impossible for entities like ODOT to accomplish.

Response: The groundwater recharge volume is a part of the total water quality volume that must be provided for as part of a typical stormwater NPDES permit. Alternatives such as structural BMPs are allowable mitigation options under the permit. ODOT could consider including a small additional buffer of land along the roadway easement which would be set aside as the required groundwater mitigation portion of the permit.

86. A commenter stated that the Darby Accord's efforts to establish a "Town Center" type of development will be constrained by the proposed groundwater infiltration requirements.

Response: The proposed groundwater infiltration requirements provide an additional potential credit system to increase the economic value of land not developed. The groundwater infiltration requirements should not constrain the Town Center concept of the Darby Accord.

87. Part III.G.2.c.iii states that "The use of structural BMPs can only be contemplated on sites with little risk of ground water pollution potential." The permit does not define specific areas of concern. Additional language should be added to the permit to address the use of structural BMPs in drinking water source protection areas for community public water systems, as follows: "The applicant may use structural BMPs within drinking water source protection areas for community public water systems only to the extent that the structural BMP(s) does not cause contaminants in the recharge waters to impact the ground water quality at levels that would cause an exceedence of the drinking water Maximum Contaminant Levels (OAC Section 3745-81 and 3745-82)." If this language in not included in the permit, Ohio EPA's Division of Surface Water (DSW) should develop an internal procedure to seek input from Ohio EPA's Division of Drinking and Ground Water (DDAGW) for any structural ground water recharge BMP that is proposed within a drinking water source protection area. DDAGW can provide a map of the source water protection areas to DSW staff responsible for reviewing permit applications. Any structural BMP which uses a drainage well(s) as defined by Ohio EPA Class 5 Injection Wells are required to submit inventory information to the DDAGW, regardless of whether or not they are located within a source water protection area.

Response: The suggested language will be included in the final permit.

88. One commenter stated that the groundwater recharge rates listed in Table 1 appear high (based on regional recharge data), especially for D group soils. For example, New Jersey assumes that there is zero recharge for hydric and most other D group soils; whereas, Table 1 in the permit assigns 14.6 inches per year recharge in D group soils (with "forest" or "brush" land use, less for other land uses). There are several potential problems with assuming a higher recharge than may be likely for D group soils. For example, if a developer converted a woodlot to a high density residential development (with assumed 7.3 inches/year recharge) the developer would have to mitigate for 7.3 inches per year recharge. It seems highly unlikely that a structural BMP could force 7.3 inches per year recharge through class D soils (although the developer could mitigate off-site conservation development strategies). The recharge values in Table 1 were developed based on the surface water model DSW completed for the watershed and not based on actual measurements. The recharge rates for D group soils should be decreased

and more priority should be given to minimizing development in A or B group soils (that make up only 13% of the watershed) that are more likely recharge areas.

Response: The recharge values in Table 1 are based, in part, on existing data. The baseflow recharge portion of the watershed modeling results calibrate very well to the observed baseflow values at the stream gages in the watershed. In addition, the calculation of existing baseflow recharge based on existing land use and soil groupings compares well to the observed and published baseflow recharge rates for the Darby watershed. There is little or no actual measurements available across the nation of groundwater recharge per specific soil group and land use. The best science currently available is to base such specific calculation needs on hydrologic models.

It is unlikely that there is zero groundwater recharge occurring on D or hydric soils as sited above for New Jersey. Many studies suggest infiltration occurs on such soils due to cracks and worm holes. In addition, these soils are by definition prone to saturated conditions. As such they can act as a slow release 'sponge' for groundwater recharge. In essence, the rate of infiltration for these soils is slow, but over time, they contribute to groundwater recharge. The permit as written should discourage development in higher recharge rate areas and encourage protection of such areas given the difference in recharge volumes needed based on Table 1. A lot more land in D soils would need to be set aside than would the A or B soil areas. In addition, the majority of A soils occur in the stream set back areas the permit requires to not be developed.

Technically, it would not be justifiable to artificially decrease the D soil group recharge potential and/or increase the A and B soil groups without firm justification and technical support. The model used by DSW to calculate the groundwater potential is based on the best science currently available for all soil groups. Additional data has been provided by the ODNR to better target areas with greater potential for deep aquifer recharge and the final permit table reflects this additional data.

89. One commenter stated that the permit language does not describe how multi-group soils should be addressed. For example, some soils are listed in the soil surveys as B/D or C/D. This means that the soil is naturally a D soil, but if tile drains are installed the soil will behave as a B (or C) soil (since tiles help drain perched water tables). The permit should specify that all B/D or C/D soils must be considered D soils for purposes of ground water recharge. This is important because D soils provide less ground water recharge and should not be included in off-site recharge-focused conservation strategies.

Response: This language will be included in the final permit.

90. One commenter stated that the first paragraph in Part III.G.2.c implies that open space is synonymous with infiltration areas. The permit should refer to "infiltration areas" and not "open space," since open space with class D soils may not be a good "infiltration area" and pervious pavement and other structural infiltration areas may not be considered "open space." Since this section of the permit is focused on preserving ground water infiltration, the preferred term should be "infiltration areas."

    Response: The suggested change will be made in the final permit.

91. One commenter stated that if ground water volumes are maintained, the WQv should be decreased. Other design manuals across the country such as the "2000 Maryland Stormwater Design Manual, Volumes I & II show a reduction in the WQv if the ground water volume is maintained. The difference between the post construction ground water recharge and the pre-construction ground water recharge should be subtracted from the Wqv.

    Response: The draft permit intended to incorporate this suggestion; it will be clarified in the final permit.

92. Multiple comments were received in regards to conservation easements associated with riparian and groundwater recharge requirements. One commenter suggested that government agencies should be exempt from establishing easements on their own projects. Other comments stated that since it is difficult to identify a third party to accept a conservation easement, Ohio EPA must identify an entity that will be willing to hold these easements throughout the watershed. Without such a default entity, a storm water permit could be held up for months, if not permanently, dependent upon the identification of an amendable third party. In the alternative, third parties could charge excessive fees to accept an easement.

    Response: The comment is noted. It is expected that the Darby Accord plan will include a method for establishing easements.

SEDIMENT & EROSION CONTROL REQUIREMENTS

93. One commenter requested clarification for the permit requirement "For sites five or more acres in size, the use of silt fence as a primary sediment control is prohibited.", does the word "sites" refer to the permitted area or the EDA? This makes a difference in that the 5 acre threshold becomes a conflict with the sediment storage volume requirement of 134 cubic yards. (Part III.G.2.f.b.c)

Response: "Sites" refer to all sites which result in a land disturbance ≥5 acres.

94. A commenter requested the rationale and science to prohibit the use of silt fence as a primary sediment control? (Part III.G.2.f.b.c)

    Response: Silt fence has demonstrated a 15 - 20% removal of suspended solids from construction storm water runoff (in accordance with reports by ODNR and ASCE). This is not sufficient to meet the target discharge as specified in the TMDL to ensure the integrity of the watershed.

95. A commenter requested that the "centralized sediment basin" needs to be further described.

    Response: All storm water from the disturbed area must be routed to a centralized location(s) for treatment. For the purposes of this permit, a centralized sediment basin(s).

96. A commenter requested a language change regarding the statement "Diversions shall direct all storm water runoff from the site to the impoundment intended for sediment control.", this should read from the disturbed areas not from the site. (Part III.G.2.f.b.c)

    Response: Ohio EPA agrees and the permit will be changed accordingly.

97. A commenter questioned the following permit requirement "The sediment basins and associated diversions shall be implemented prior to the major earth disturbing activity.", how is this statement different from those statements under section "Timing"? (Part III.G.2.f.b.c)

    Response: The intent is the same.

98. One commenter requested the rationale and science behind the content of Table 4.

    Response: This table is derived from "The Rainwater and Land Development Manual" by ODNR.

99. One commenter requested the rationale and science that sets an upper limit of 10 acres for diversion practices.

    Response: Ohio's Rainwater and Land Development manual's specifications for a temporary diversion can accommodate flows up to 10 acres. Diversions with

greater drainage areas are beyond the scope of the manual and must be designed for stability.

100. Multiple commenters requested the rationale and science behind the minimum sediment storage volume of 134 cubic yards of effective sediment storage per acre of drainage and the target discharge performance standard of 45 mg/l Total Suspended Solids (TSS) up to a 0.75-inch rainfall event within a 24 hour period? The permit seems to require two sets of criteria: 1) "provide a minimum sediment storage volume of 134 cubic yards of effective sediment storage per acre of drainage; and 2) "maintain a target discharge performance standard of 45 mg/l Total Suspended Solids (TSS) up to a 0.75-inch rainfall event within a 24 hour period". Which one of the above criteria is more important to meet? It was suggested that the TSS requirements be removed.

    Response: The 45 mg/l TSS target discharge performance standard is supported by the TMDL. The required sediment storage of 134 cubic yards has been required in other State issued permits to achieve the average discharge of 30 - 45 mg/l TSS. Alternative sediment and erosion controls will be considered under Part III.G.4 (Exceptions) with a minimum goal of meeting 45 mg/l.

101. A comment was received regarding the statement "The configuration between inlets and the outlet of the basin must provide at least two units of length for each one unit of width (> 2:1 length: width ratio)" (Part III.G.2.f.b), the permit sets the size and shape of the basin which may or may not meet the TSS criteria.

    Response: The > 2:1 length: width ratio provides enhanced treatment and eliminates the potential of short circuiting.

102. A comment was received regarding the statement "When designing sediment settling ponds, the permittee must consider public safety, especially as it relates to children for the sediment basin and alternative sediment controls must be used where site limitations would preclude a safe design" (Part III.G.2.f.b): Therefore, are the above size and shape of the sediment basin negated when a safe design is required. If this is the case, then a non-safe design would also work if safety was not a concern. The designer needs to be allowed to design the sediment basin to meet all conditions of the site. If sites are such that 10 feet deep sediment pond is not a safety problem then this design should be allowed by the permit.

    Response: Issues will be evaluated on a case-by-case basis.

103. One commenter stated that USEPA's researchers have found that effectively-implemented BMPs result in discharges with approximately 80 mg/l TSS. Has the

Ohio EPA conducted any studies to determine if the permit requirement of 45 mg/l can be met?

Response: Many individual NPDES permits have been issued to ensure a 30 - 45 mg/l TSS is achieved. The review of the self monitoring reports indicate 45 mg/l TSS is achievable.

104. One commenter stated that the target discharge must consider the background TSS or turbidity values of the receiving waters upstream of the site. Any modification to BMPs should be based on the relationship between the upstream water and the water being discharged from the site. For linear transportation projects it is generally not feasible to separate "run-on" flow from adjacent properties in a narrow strip of right of way. This flow may contain TSS levels that will make attainment of the target discharge more difficult in these projects.

Response: The 45 mg/l target discharge performance standard is supported by the TMDL. Linear projects must account for run-on by designing ponds accordingly or implement dual diversion ditches to route storm water run-on around the project area.

105. One commenter stated that sediment settling basins are generally placed at the lowest point on the construction site for obvious drainage reasons. For a linear transportation project with a stream crossing, the lowest point would be near the stream and within the stream setback area. Since the stream setback requirements in this permit would prohibit placement of sediment settling basins in the setback area, it would be difficult or impossible for such a project to meet the sizing and/or discharge requirements of the permit.

Response: In the event a linear project crosses a stream the use of sediment basins closer to the stream will be considered on a case-by-case basis in accordance with Part III.G.4 of the permit.

106. One commenter stated that the permit asks the permittee to consider "public safety" when designing sediment ponds. The commenter questioned whether Ohio EPA will provide guidance to these standards and what does "public safety" have to do with Ohio EPA's authority under the Clean Water Act.

Response: Sediment basins are attractive to children and can be dangerous, particularly where slopes 2:1 or steeper lead directly into water 3 feet or deeper. Danger is also increased where side slopes are not vegetated. The danger associated with sediment basins can be minimized by avoiding the above pond configurations and/or by fencing and posting warning signs where appropriate.

107. A comment was received regarding the statement "When determining the total contributing drainage area, off-site areas and areas which remain undisturbed by construction activity must be included, unless runoff from these areas is diverted away from the sediment settling pond and is not commingled with sediment laden runoff." (Part III.G.2.f.b): we suggest adding information which would allow the designer the option to divert or by-pass off-site undisturbed runoff flow and reduce the basin size accordingly.

    Response: This option is permissible under the draft conditions of the permit.

108. One commenter stated that some facilities already have permanent ponds on site labeled with three digit numbers, e.g. 001, 002, etc. The commenter requested that the permittee be allowed to determine the labeling system for sediment ponds associated with this permit.

    Response: Ohio EPA agrees that some facilities already have permanent ponds on site that are labeled with a three digit number. Permittees must still use a three digit number up to 399 to label sediment ponds associated with this permit.

109. Comments were received which requested the justification and clarification as to why the permit requires the installation of a sediment settling pond for sites which disturb 5 acres or greater; whereas, the statewide construction storm water general permit requires a sediment settling pond for sites which disturb 10 acres or greater. Commenters had concerns that 5 acre sites may not have enough land to accommodate a sediment settling pond and that transportation projects should have more flexibility for installing sediment settling ponds.

    Response: In most cases the design capacity of silt fence is exceeded where land disturbance exceeds 5 acres. However, alternative controls can be considered on a site-by-site basis.

110. Multiple comments were received requesting guidance for TSS monitoring requirements. It was requested that Ohio EPA provide additional guidance on the sampling techniques, appropriate analytical methods and how to properly transport samples to the laboratory. Also, Ohio EPA should provide a better understanding of the costs associated with the analysis. One commenter requested that permittees should be required to submit monitoring data to Ohio EPA and data should be available to interested parties upon request.

    Response: TSS monitoring guidance will be provided to ensure the intent of the requirement set forth in this permit is addressed. The monitoring data that is required associated with the permit is to remain on site available for review. As in

all documents associated with the SWP3, monitoring data will be made available to all interested parties upon request. Ohio EPA chose total suspended solids due to its consistency with all state issued NPDES permits and the TMDL for Big Darby Creek. However, Ohio EPA shall consider the use of alternative sampling protocol if an equivalency is demonstrated.

111. A comment stated that monitoring should be based on a parameter that can be measured quickly and easily in the field, such as turbidity. The laboratory work required to measure TSS involves time and money that could be better spent on the project site.

Response: Ohio EPA chose total suspended solids due to its consistency with all state issued NPDES permits and the TMDL for Big Darby Creek. However, Ohio EPA shall consider the use of alternative sampling protocol if an equivalency is demonstrated.

112. One commenter questioned the permit requirement "Grab sampling shall be initiated at a site within 14 days, or the first applicable rainfall event thereafter, once upslope disturbance of each sampling location is initiated and shall continue on a quarterly basis." (Part III.G.2.f.b.b) What is the rationale and science to get a sample within 14 days or the first applicable rainfall?

Response: It is our intent to ensure all sediment controls are functioning as intended as quickly as possible. The permit requires an evaluation via sampling within 14 days or the first applicable rainfall event thereafter; whereas, all controls must be implemented at that time in the construction sequence.

113. One comment stated that if the performance standard of 45mg/l TSS is not met, can the Agency require better control practices in less than 10 days? This might be appropriate to avoid further degradation from BMP failure.

Response: Ohio EPA's intent was to maintain consistency with the maintenance requirements of the permit. In many cases, improvement to a centralized sediment basin will be required which will result in significant earth disturbing activity.

114. One commenter stated that the following two permit requirements are redundant: "Sampling results shall be retained on site and available for inspection." (Part III.G.2.f.b.b) and "Both quarterly and sampling results following a discharge target exceedance shall be retained on site and available for inspection." (Part III.G.2.f.b.b)

Response: Part III.G.2.f.b.b of the permit just reinforces that both the quarterly required sampling results and any sampling results following a discharge target exceedance shall be retained on site and available for inspection. No changes are needed.

115. One commenter questioned how Ohio EPA will guarantee that permittees performing the TSS monitoring are qualified. Also, it was questioned whether the Credible Data rules will be applicable to the TSS monitoring.

Response: Inspections will be conducted to ensure effective monitoring. Data submitted pursuant to the requirements of a permit issued by a state agency are considered credible if appropriate test methods and laboratory quality assurance program specifications were followed and the director doesn't identify reasons why the data are not credible. For more information, see Ohio Administrative Code (OAC) 3745-4-01(D): http://www.epa.state.oh.us/dsw/rules/3745-4.html.

116. Commenters requested clarification whether the sediment settling pond and TSS monitoring requirements were associated with during construction or applicable for permanent post-construction BMPs. Another commenter requested that quarterly samples be taken within 14 days after a rainfall event greater than 0.25 inch.

Response: The intent of the TSS monitoring requirements was to evaluate impacts concurrent with construction where sediment poses a significant threat. Many sediment ponds are temporary and not required following construction. The permit does not include monitoring requirements for permanent post-construction BMPs. In addition, guidance for sampling protocols will be provided to ensure the discharge is representative of the construction activity.

117. One commenter requested clarification on who will monitor and enforce the target discharges associated with sediment settling ponds. The commenter also questioned whether sediment settling basins will become ponds for waterfowl and require treatment for mosquitos. The commenter was also concerned that these ponds will become prone to flooding during changes in weather. Another commenter questioned who is responsible for removing sediment from a sediment settling pond.

Response: Ohio EPA and possibly local entities responsible for sediment and erosion control within the Darby watershed will monitor and enforce all conditions of this permit. Sediment ponds are only required on a temporary basis concurrent with construction. Treatment for mosquitos is not required but not precluded under the conditions of this permit. The sediment ponds are not designed to address

quantity, rather provide treatment of storm water during the construction process. All quantity issues are under the jurisdiction of the local governmental entity.

118. A commenter requested that for Part III.G.1 the following text be added between f and g: "A description of prior channelization at the site."

Response: Ohio EPA agrees and the permit will be changed accordingly.

119. A commenter requested the current conditions of receiving water bodies should be included in the site description. This should at least include use designations, 303(d) listings, TMDLs, and antidegradation designations. This will make environmental goals more clear, and determine if the applicant understands applicable requirements.

Response: The comment was noted but no changes will be made.

120. One comment suggested that the Agency include an incentive to not grade the entire area. Perhaps this could be included in calculations for stormwater management. The permit should encourage Low Impact Development site plans and use of such BMPs where they could be shown to be permanently effective (not subject to later undoing by subsequent property managers).

Response: The Ohio EPA believes that there is an incentive for multiple phasing a project. In the event that the entire project is disturbed at any given time the contractor may incur additional sediment and erosional control costs such as temporary seeding and additional sediment controls to address the entire disturbed area. It is Ohio EPAs' belief that this money could be saved should the developer/contractor decide to phase the project. In addition, the permit lends itself to be more cost effective with respect to low impact development. Large regional post construction storm water requirements not to mention mitigation for potential groundwater recharge loss must be provided in the event of large disturbed areas encountered concurrent with construction. The presence of low impact development could reduce this mitigation cost and result in a savings for the developer/contractor.

121. One commenter asked what is the reason for a description of the structural practices in the SWPPP when the location of the structural practice provides this information as required by Part III.G.2.f?

Response: The SWPPP needs to include both the drawings and a narrative description of structural BMPs. A list of the structural practices addressed in the SWP3 are required to ensure the minimum conditions of the general permit are

met. In certain cases the developer/contractor may opt to implement new and innovative technologies to address the conditions of the permit. The list of all the structural practices would allow the Ohio EPA reviewer to effectively evaluate each practice to ensure the intended functions of the permit are met. This aids in the review process.

122. One commenter stated that diversion or redirection of flow may take the flow away from disturbed areas and therefore not require a sediment settling pond. If so, why put restrictions on the use of earth diversion dikes or channels to include a sediment settling pond as indicated within Part III. G.2.f?

Response: The use of temporary diversions are two fold. In many cases temporary diversions are used to collect storm water from affected areas and route them to an intended pond designated for sediment control. Proposed in this permit are sediment ponds with a minimum sediment storage volume of 134 cubic yards per acre of drainage. The use of off site diversions to redirect flow around the projects will not require the use of a settling pond.

123. A comment stated that within Part III.G.2.f.a these statements are in conflict: "functional throughout the course of earth disturbing activity" and "continue to function until the up slope development area is restabilized". Which one should apply? For example, if the sediment basins are removed after the earth disturbing activity is complete, the requirement is met and therefore they do not have to continue.

Response: The statement which addresses that all sediment and erosion controls remain functional throughout the course of earth disturbing activities is intended to address maintenance of the proposed sediment and or erosion control. In many cases sediment and erosion controls are not properly maintained. This statement reflects the maintenance required to ensure they are functional throughout the earth disturbing activities. The sediment controls must remain to ensure minimal sediment loss until vegetation is established sufficient to control erosion.

124. Comments were received on language found within Part III.G.2.f.b. (1)A comment stated that these two statements are not the same: "concentrated storm water runoff and runoff from drainage areas", however, the permit states that they are treated in a sediment settling pond. How do you treat non-concentrated storm water runoff in a sediment settling pond? (2)Regarding the statement "For common drainage locations that serve an area with 5 or more acres disturbed at one time, a temporary (or permanent) sediment settling pond shall be provided until final stabilization of the site.", the time constraint "until final stabilization of the site" should be removed from this section since it is covered in the timing section. What is the rationale and science that sets the disturbance area at 5 acres or

above? (3)Regarding the statement "For drainage locations serving less than 5 acres, smaller sediment basins and or sediment traps should be used.", clarify what constitutes a "smaller sediment basin." For example, would a smaller sediment basin be sized to accommodate 67 cubic yards per acre of disturbance?

Response: In response to the question, How do you treat non-concentrated storm water runoff in a sediment settling pond? The intent of this section was to address large drainage areas where sediment controls are implemented in excess of their design limitations. For example, in many cases perimeter silt fences are installed for large drainage area that far exceeds the design limitations. In this event, a sediment pond or approvable alternative is required to ensure effective sediment control throughout the construction process. In response to item 2 of comment #124, the language which indicated that a settling pond must remain until final stabilization of the site is completed was incorporated and emphasized due to, the premature removal of temporary sediment basins which have been noted with construction inspections over the past 10 years. Ohio EPA wanted to emphasize this point to ensure that the sediment pond remains until all areas are adequately protected from erosion. In response to item 3, a smaller sediment basin would not reduce the required sediment storage as required in the permit. However sediment traps with no means of dewatering in between storm events are permissible for sites which disturb less than 5 acres. The condition of 5 acres or more requiring a sediment basin is being required due to, the fact that design capacity associated with perimeter silt fence is generally exceeded in disturbed areas 5 acres or greater.

125. A commenter requested that the following text be added for Part III.G.1.g: “designation of vegetative preservation areas.”

Response: Ohio EPA agrees and the permit will be changed accordingly.

126. A commenter suggested a wording change for Part III.G.1.l.viii. The suggested wording was: “The location of all erosion and sediment control practices, including the location of areas: to be constructed in different phases; to have temporary or permanent preservation of vegetation or land; and areas likely to require temporary stabilization during the course of site development;.”

Response: Ohio EPA agrees and the permit will be changed accordingly.

127. A commenter requested the following text to be added to Part III.G.1.l: “The location of any areas of floodplain fill, floodplain excavation, stream restoration or stream crossings.”

Response: Ohio EPA agrees and the permit will be changed accordingly.

128. A commenter suggested the following addition (underlined) to Part III.G.2.d: "The SWP3 must make use of erosion controls that are capable of providing cover over disturbed soils unless an exception is approved in accordance with Part III.G.4. A description of control practices designed to maintain vegetative cover or restabilize disturbed areas after grading or construction shall be included in the SWP3. The SWP3 must provide specifications for stabilization of all disturbed areas of the site and provide guidance as to which method of stabilization will be employed for any time of the year. Such practices may include: temporary seeding, permanent seeding, mulching, matting, sod stabilization, vegetative buffer strips, phasing of construction operations, use of construction entrances and the use of alternative ground cover.

    Response: Ohio EPA agrees and the change will be made accordingly.

129. One commenter stated that phasing, clearing and grubbing activities "to minimize the amount of disturbed land at any one time" may be in conflict with the schedule dictated by the US Fish and Wildlife Service to avoid potential impacts to the Federally Endangered Indiana bat. ODOT is required to schedule its clearing and grubbing activities to avoid removing trees with potentially suitable Indiana bat habitat when the bats may be utilizing the habitat (trees removed between September 15th and April 15th). Other developers that require a Federal action to complete their projects may also have this same restriction.

    Response: Issues will be evaluated on a case-by-case basis.

130. A commenter requested that rock check dams be deleted from the list in Part III.G.2.d.ii, because they are technically not a permanent stabilization practice.

    Response: Ohio EPA agrees and the change will be made accordingly.

131. A comment stated that the permit requires applicants to identify streams and wetlands within 200 feet of the development site. Applicants rarely have the authority to unilaterally enter neighboring properties to conduct wetland and/or stream verifications. It was requested that this provision be eliminated from the permit because it bears no relation to the management of storm water on the parcel to be developed.

    Response: This is standard permit language found within the statewide Construction Storm Water general permit. No changes will be made.

POST-CONSTRUCTION REQUIREMENTS

132. One commenter questioned why the permit utilizes a different formula for determining the WQv.

     Response: As recommended by the Ohio Department of Natural Resources, the permit will be modified to mirror the statewide Construction Storm Water general permit WQv requirements. It is believed that the statewide permit's WQv requirements are adequate in protecting the Darby's physical, chemical and biological characteristics.

133. One commenter questioned why the proposed permit requires the SWP3 to provide a description of funding for maintaining the permanent storm water management facilities.

     Response: It is Ohio EPA's intent to ensure all permanent post-construction BMPs are maintained in perpetuity to ensure the intended functions of all post-construction practices.

134. A comment was received that requested Ohio EPA develop an example Operation and Maintenance plan for a post-construction BMP for additional guidance. Also, the commenter questioned what requirements exist for the disposal of sediments from post-construction BMPs.

     Response: Ohio EPA has found the manual titled ***Operation, Maintenance & Management of Stormwater Management Systems*** (Watershed Management Institute, 1997) helpful for developing long-term maintenance plans for post-construction BMPs. The manual includes inspection checklists for not only on-going maintenance requirements of the various practices, but also while the structures are being constructed. The manual also contains information that operators of regulated Small MS4s will find useful when setting up their local long-term maintenance programs required under the post-construction Minimum Control Measure of their Storm Water Management Programs.

     Pollutants collected from structural post-construction BMPs would be considered a solid waste and would require disposal at a landfill. The landfill may require testing prior to accepting the waste. Accumulated sediments removed from a sediment pond would not be considered solid waste and could simply be re-applied to the site.

135. A comment received stated that the permit should only be applicable to construction activities when a land use change takes place. It is not appropriate to

apply the draft permit requirements to normal County performed maintenance functions, such as routine maintenance of County petitioned drainage ditches and routine maintenance of road ditches that have an established purpose and history.

Response: As defined in 40 CFR 122.26(b)(15), a storm water discharge associated with small construction activity means the discharge of storm water from a construction activity, including clearing, grading, and excavating, that will result in land disturbance of equal to or greater than one acre and less than five acres. A small construction activity also includes the disturbance of less than one acre of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb equal to or greater than one and less than five acres. A small construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the facility. If a construction activity involves the disturbance of less than five acres of land and is only performed to maintain its original purpose, then a National Pollutant Discharge Elimination System (NPDES) permit is not required to discharge storm water from the construction activity. Please see the following link for additional information: http://www.epa.state.oh.us/dsw/storm/routine_maint.html

136. A commenter requested changes to calculating the water quality volume. While the release of detained water equitably throughout the drain time is implied, this goal should be stated to prevent the bulk of water being released early in the detention and a minimally effective quantity of water being released over remaining time. This addition or similar language is suggested: "The first half of the extended detention volume shall drain in a time greater or equal to 1/3 of the total drain time." Additionally, the addition of the regression constants to the water quality volume and allowance of a 12 hour drain time is problematic. Also, the proposed table on page 26 has an error since the regression constant given for infiltration, vegetated swale and filter strips for 24-48 hours drain time is given as 1.299 rather than "1.299 to 1.545" shown on page 177 from table 5.4 from the Urban Runoff Quality Management (ASCE, 1998). The regular Ohio EPA Construction General Permit (CGP) effectively uses one regression constant (1.5) times the rainfall (0.5in), resulting in the 0.75 precipitation value found in the statewide NPDES CGP Water Quality volume formula. The Darby permit, by using the regression constants effectively reduces the detention volume since the regression constants vary from 1.109 (12 hour drain time) to 1.299 (24 hour drain time). These multiplied by the 0.5 rainfall results in 0.55 to 0.65 for the value of precipitation versus the 0.75 of the regular CGP. It is recommend to drop the regression constants as it seems to lower standards in the Darby permit and go back to the 0.75 precipitation in the existing WQv formula in the statewide CGP permit.

The 12-hour detention time is problematic since it provides very little detention. If ½ of the detained volume leaves a development site in the first 1/3 of the total drain time that means, ½ of the extended detention volume is leaving in 4 hours. This is very similar to the pre-development times of concentration on some development sites. In other words, this means very little detention and very little stream stability protection would be gained through this detention. Another drain time issue is whether some nutrient treatment will be incorporated into the minimum drain time. We expect the existing statewide standard of 24 hour extended detention to provide better treatment than the shorter duration in the proposed Darby permit.

Response: As indicated within comment #132, the permit will be modified to mirror the statewide Construction Storm Water general permit WQv requirements. Ohio EPA agrees that the release of detained water equitably throughout the drain time is only implied and should be specifically stated. As requested, the following language will be added to the permit: "The first half of the extended detention volume shall drain in a time greater or equal to 1/3 of the total drain time."

137. A commenter also requested that small construction sites (1 - 4 acres) should also attempt to meet the same standard applied to large construction projects in that they should first attempt to capture and provide extended detention for the water quality volume. The absence of a specific prescription for water quality volume has been interpreted as requiring less water quality treatment than larger sites, most communities would not consider storm water impacts from these sites to be insignificant. If a reduced standard is to be applied, then it should be stated as a design goal such as a reduced water quality volume.

Response: Post-construction BMPs are required on small construction sites ($\geq$1 and $\leq$ 5 acres). The post-construction BMPs that will be installed must still address the anticipated impacts on the channel and floodplain morphology, hydrology and water quality. BMPs should be selected to treat the pollutants and storm water concerns associated with the proposed land use. Ohio EPA believes that this goal is best reached by implementing the BMPs listed in the post-construction BMP Table of the permit. However, because Ohio EPA does not explicitly require that BMPs selected for small construction sites be designed to treat the WQv and drain it down over a prescribed time period, alternative BMPs may be selected for use on these sites. In some instances, a strictly non-structural approach may be appropriate. This allows the SWP3 designer greater flexibility in selecting BMPs. However, if the BMP selected for use on a small site is one found in the post-construction BMP Table of the permit, the WQv and draindown criteria should still be applied to the design of the BMP to assure proper operation. Velocity dissipation devices must be placed at discharge locations and along the length of any outfall channel to provide non-erosive flow velocities from the site.

Examples of BMPs that may be suitable for small construction sites include conservation easements, riparian setbacks, vegetative filter strips, preservation of green spaces, grassy swales, infiltration trenches, sand filters, bioretention cells, rain barrels, use of permeable pavements, roof gardens, catch basin inserts, hydrodynamic separators, and/or media filters.

138. Multiple comments were received which questioned the permit's requirements associated with design of post-construction BMPs. One commenter stated that the permit only includes sizing requirements but no standards are associated with the storm water release rates or volumes. It was requested that Ohio EPA review the storm water release rates specified in the City of Columbus's Storm Water Drainage Manual. It was requested that the permit prohibit any increase in post-construction storm water volume or rate.

    Response: As indicated within comment #132, the permit will be modified to mirror the statewide Construction Storm Water general permit post-construction requirements. The intent of post-construction BMPs is to assure that storm water runoff from developed land does not negatively impact receiving streams, either through hydrologic impacts or pollutant discharges. Thus, traditional storm water controls which simply address the peak rate of storm water discharge from flood-producing storm events are not adequate. Ohio EPA believes that the post-construction WQv requirements will be protective of the Darby's physical, chemical and biological characteristics.

139. One commenter requested clarification on post-construction requirements associated with linear transportation projects.

    Response: Permittees may design BMPs per the target draw down (drain) times for structural post-construction BMPs or the permittee may request approval from Ohio EPA to use alternative structural post-construction BMPs if the permittee can demonstrate that the alternative BMPs are equivalent in effectiveness to those listed in the permit.

140. One commenter requested clarification as to why large construction projects are required to provide an additional volume equal to 20 percent of the WQv be incorporated into the post-construction BMP.

    Response: The purpose of the additional volume is to provide storage for pollutants which will accumulate within the structural BMP. Thus, the additional volume should be incorporated into the BMP wherever pollutants are intended to settle within the structure. For example, in a wet basin, the pollutants will accumulate within the wet pool. Thus, the additional 20% of the WQv must be

added to the volume of the wet pool only. For a bioretention cell, pollutants settle on the surface of the cell. Thus, the additional 20% of the WQv must be added to the storage volume between the surface of the cell and the overflow connected to the storm sewer system.

141. Multiple commenters questioned why extended detention basins (dry) have been omitted from the post-construction BMP Table. These BMPs are permitted under NPDES Permit No. OHC000002. The commenter stated that this type of basin provides levels of similar capabilities in solid removal and dissolved constituent removal as those provided for in the permit's post-construction BMP Table.

    Response: It is the agency's concern that the dry basins, including underground extended detention manufactured systems, results in the re-suspension of sediments which drop out with each rain event. Generally, these accumulated sediments are re-suspended during large or significant rain events and wash out all the accumulated sediments which have settled intended for post-construction water quality treatment.

142. One commenter requested clarification for Part III.G.2.g. This permit requirement states that the permit does not preclude the use of innovative or experimental post-construction storm water management technologies. However, the director may require discharges from such structures to be monitored to ensure compliance with Part III.G.2.g of this permit. Who determines if these BMPs are appropriate in effectiveness and what happens if the BMP does not function satisfactory?

    Response: The district storm water coordinator will make an evaluation of any proposed innovative or experimental post-construction technologies. The director may require monitoring of these discharges to ensure the intent of the permit is satisfied. An evaluation will include components such as stream protection, pollutant removal and or groundwater recharge capabilities. If the BMP does not function as intended and satisfy the conditions of the permit alternative practices will be required.

143. One commenter stated that the permit requires small construction activities to place structural measures on upland soils to the degree attainable but the permit includes no such requirement for large construction activities to place structural measures outside floodplains.

    Response: Each proposed site will be evaluated to ensure riparian setback requirements are satisfied. This would be applicable to both small and large construction activities. The riparian setback requirements prohibit the installation of structural sediment controls (e.g., installation of silt fence or a sediment settling

pond) or structural post-construction controls within a stream or the delineated setback.

144. One commenter had concerns about assignment of liability between the project owner and the contractor, especially with regard to the development and implementation of the SWP3, particularly because post-construction storm water controls are to be included. This would require the contractor to develop the final drainage plans for the project or require the contractor to incorporate ODOT's design into the SWP3. The commenter questioned where the liability/responsibility of the contractor terminates if the design and implementation of post-construction storm water BMPs are incorporated into a SWP3 plan that ODOT has contractually assigned to the contractor.

    Response: The responsibility/liability of the contractor would remain in effect until a notice of termination is granted for the site. Prior to that time a maintenance agreement must be developed by the original permitee which would address assurances for the long term operations and maintenance of any post-construction practices. Keep in mind the definition of operator is a responsible party who has operational control of all day to day activities with respect to conditions of the general storm water permit. It is our assumption that a contractor would not incorporate day to day activities of any post-construction practices since services have been terminated. Therefore, Ohio EPA would be looking towards the responsible party, the initial permit holder, to all post-construction measures are properly funded and maintained.

145. One commenter requested that the permit make specific provisions to allow for combining permanent storm water BMPs into regional treatment facilities instead of many localized BMPs for each development.

    Response: The permit does not preclude the use of regional treatment facilities. No changes are warranted.

146. A comment was received on Part III.G.2.g "Linear construction projects, (e.g., pipeline or utility line installation), which do not result in the installation of impervious surface, are not required to comply with the conditions of Part III.G.2.g of this permit. However, linear construction projects must be designed to minimize the number of stream crossings and the width of disturbance." The commenter stated that in addition to justifying why these crossings are minimized, the applicants should specify the BMPs proposed for these stream crossings, and explain why they are appropriate and best.

Response: All proposed best management practices (BMPs) will be evaluated for effectiveness during the review process. A list of BMPs addressing appropriate storm water practices will be necessary to ensure a complete review of the SWP3 and ensuring the conditions set forth in the permit are met. In addition, certain U.S. Army Corps of Engineer and Ohio EPA 404/401 permits are required for stream crossing where the BMP's will also be evaluated.

147. One commenter stated that release rates must protect downstream channel integrity. The Agency should clarify how the proposed stormwater BMP release rates improve upon stream protection required for other Phase II stormwater permits in the rest of Ohio. The release rates must prevent unstable channels, and protect stream integrity and biological diversity. Please provide an explanation of how these requirements in Table 5 protect streams at these levels.

Response: As indicated within comment #132, the permit will be modified to mirror the statewide Construction Storm Water general permit post-construction requirements. The term "water quality volume" is generally used to define the amount of storm water runoff from any given storm that should be captured and treated in order to remove a majority of storm water pollutants on an average annual basis. Calculation of the WQv is based on findings that a detention basin had to be designed to empty out a volume equal to the average runoff event's volume in no less than 24 hours to be an effective storm water quality enhancement facility (Roesner et al., 1991). In later studies, this was refined to determine a "maximized capture volume" where capture of larger storm events does not significantly result in greater pollutant removal (Urbonas and Stahre, 1993). In determining the "maximized capture volume" for the State of Ohio, Ohio EPA followed the guidelines provided in the American Society of Civil Engineers (ASCE) Manual and Report on Engineering Practice No. 87 and Water Environment Federation (WEF) Manual of Practice No. 23 titled ***Urban Runoff Quality Management***. Long-term analysis of rainfall data indicates that 85% of storm events in Ohio result in a rainfall of 0.50 inches or less. Multiplying this amount by 1.5 (which represents a mid-range regression coefficient for maximizing storm event and volume capture) results in 0.75 being used as the rainfall depth (see pages 175-178 of the ASCE manual). As defined in Ohio, the WQv results in the capture and treatment of the entire volume for 85% of the average annual storm events. Ohio EPA and the Ohio Department of Natural Resources feel that the existing statewide standard is a sufficient precipitation depth to control pollutants in runoff, but also minimize channel and stream bank erosion due to runoff from developed areas.

The target drain down times are based on information from the WEF Manual of Practice No. 23 and ASCE Manual and Report on Engineering Practice No. 87

Urban Runoff Quality Management along with specific design guidelines from this manual about the various BMPs. The intent of the draw down time is to:

1) Allow quiescent conditions to occur following most storms
2) Provide adequate time for the pollutant removal mechanism of the BMP to occur (e.g., settling, filtering or biodegradation)
3) Distribute energy of the increased flow across a longer period of time, reducing erosion forces on the stream bed and bank
4) make sure the above three conditions are achieved for all precipitation events up to and including those that generate the WQv. A lesser degree of treatment will also be provided for runoff volumes that exceed the WQv.
5) Provide sufficient available capacity for subsequent storm events
6) Avoid the creation of nuisance conditions

When combined with the WQv criteria, the target drawdown times in the permit will provide hydrologic control and pollutant removal from the majority of storm events without creating adverse conditions.

148. A commenter requested how the permit addresses the issue of increased water temperatures due to storm water management.

Response: The permit does not specifically include requirements associated with temperature but the outputs related to the riparian setback and groundwater recharge requirements will have a positive effect.

149. One commenter requested that Ohio EPA clearly specify who is to be held responsible for the post-construction BMP maintenance agreement.

Response: Detail drawings and maintenance plans must be provided for all post-construction BMPs. Maintenance plans must be provided by the permittee to the post-construction operator of the site upon completion of construction activities (prior to termination of permit coverage). A description of funding mechanisms and maintenance operations must be included in the maintenance agreement to ensure all post-construction BMPs will be maintained in perpetuity. No changes to the permit are warranted.

150. A commenter requested that Ohio EPA preclude homeowners associations being responsible for maintenance of post-construction BMPs; due to, these associations are not capable of maintaining the necessary expertise and funds, nor are they permanent entities.

Response: If the permit requirements associated with post-construction maintenance plans (see comment #149) are satisfied nothing would preclude a homeowners association from being the responsible party. No changes to the permit are warranted.

151. A commenter requested that all BMPs in Table 5 should be encouraged to maximize groundwater recharge through infiltration. The Agency should clarify how this is established. In some cases, limited infiltration seems to be encouraged, such as in the case of constructed wetlands, where drain times are only 24 hours. Because groundwater recharge is so critical these BMPs should be designed to maximize infiltration. If retention times are about the same as that required in Ohio EPA's standard stormwater permit, how does this encourage the necessary infiltration?

    Response: Table 5 is designed specifically to address the discharge rates associated with water quality treatment BMP's. This treatment addresses both a pollutant removal component in addition to a stream protection (via excessive erosion) component. The groundwater recharge section is not addressed in Table 5 but in Part III.G.2.d of the permit. The permit does not prohibit the use of ground water recharge via the use of water quality treatment BMP's. In fact, it is anticipated the water quality treatment BMP's will serve as groundwater recharge units and will be evaluated with the review for each site.

152. One commenter stated that lawns and other "unpaved" land surfaces in developed areas often are artificially drained at a rate greater than prior to development. The land is often regarded to encourage faster runoff, and more importantly, compacted by heavy equipment which is compounded by poor soil quality with little organic content. Therefore, runoff is greater and groundwater recharge is less than what might be theoretically predicted. Therefore, Ohio EPA should build conservative estimates into any impervious surface calculations, and estimate runoff from areas such as lawns conservatively, assuming they do not optimize groundwater recharge.

    Response: Run-off calculations, or more importantly, the run-off coefficients depicted in the permit are conservative estimates in contrast to the run-off coefficients provided in the ASCE Manual. ASCE Urban Runoff Quality Management manual provides a formula based on imperviousness for calculating the runoff coefficients. In fact, this formula provides a more accurate method by which to determine the runoff coefficient and will be permissible under the permit. The commenter raised a good point with respect to lawn construction which will be evaluated the review of each application.

153. A commenter requested that Ohio EPA initiate storm water BMP effectiveness monitoring, and stream quality trend monitoring, among other types or monitoring, as soon as possible in order to determine BMP effectiveness.

    Response: Ohio EPA intends on determining BMP effectiveness.